California Stormwater Quality Association
Dedicated to the Advancement of Stormwater Quality Management, Science and Regulation

April 25, 2011

Erin Foresman
U.S. Environmental Protection Agency (U.S. EPA), Region 9
75 Hawthorne Street, WTR-3
San Francisco, CA 94105

Subject: Water Quality Challenges in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, Advance Notice of Proposed Rulemaking (Delta ANPR) (Docket ID Number EPA–09–OW–2010–0976)

Dear Ms. Foresman:

On behalf of the California Stormwater Quality Association[1] (CASQA), thank you for giving us opportunity to provide input into U.S. EPA's planning to address water quality conditions affecting aquatic resources in California's San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Delta). We commend U.S. EPA Region 9 for soliciting broad-based input to assist it with developing a strategy to collaborate with the state of California on protecting the Delta, which is a vital national resource. We understand that U.S. EPA seeks input on all types of possible actions to protect Delta water quality, including but not limited to actions that would require rulemaking.

Our comments focus on the pesticides portion of the Delta ANPR (Section 4). CASQA shares U.S. EPA's goal of protecting the nation's watersheds from pesticide-related water pollution. Preventing water pollution from pesticides has long been a focus for action by CASQA members. Since the mid-1990s, we have been working closely with our state water regulators (California's State Water Resources Control Board and its Regional Water Quality Control Boards), our state pesticide regulators (California Department of Pesticide Regulation [DPR]), and U.S. EPA (both Region 9 and headquarters Office of Pesticide Programs) toward achieving the goal of eliminating pesticide-related water pollution in California's urban waterways. The Urban Pesticides Pollution Prevention Project (UP3 Project) supported this cooperative effort. Together our agencies have made substantial progress toward solving this problem.

Pesticide regulators have the authorities necessary to protect the nation's surface waters from pesticides—and are demonstrating that they are willing to use their authorities to do so. We are optimistic that continued collaboration among our agencies will bring about long-term changes that will solve current problems and prevent future problems.

[1] CASQA is composed of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms throughout California. Our membership provides stormwater quality management services to more than 22 million people in California. CASQA was formed in 1989 to recommend approaches for stormwater quality management to the State Water Resources Control Board.

U.S. EPA Region 9's Water Division can best protect the Delta from urban pesticides by joining our collaborative effort to more fully utilize the authority in FIFRA to protect water quality, and to achieve more effective coordination between FIFRA and Clean Water Act regulatory activities. Below we describe a wide range of activities that CASQA and it members are conducting to address pesticides, and suggest specific actions that the Region 9 Water Division could take toward protecting the Delta—and other waterways that receiving urban runoff—from pesticides.

Municipalities' Role in Controlling Pesticides in Urban Runoff

CASQA is concerned about pesticides because, on a recurring basis, the use of U.S. EPA-approved pesticides has resulted in adverse impacts to water quality and aquatic life in urban runoff and receiving waters. In recent years, numerous studies have documented the presence of pyrethroid pesticides and pesticide-caused toxicity in both water and sediment of California's urban waterways.[2] According to the California State Water Resources Control Board, toxicity is widespread in California watersheds—and is almost exclusively caused by currently used pesticides.[3]

Pesticide-related toxicity in surface waters receiving urban runoff has created a multi-million dollar regulatory burden for our municipal members. Municipalities also face potential non-compliance with permits and Total Maximum Daily Loads (TMDLs) and the threat of litigation under the citizen suit provisions of the Clean Water Act. These impacts arise from discontinuity between U.S. EPA's pesticide and surface water regulatory programs.

To comply with NPDES stormwater permits, municipalities must meet two broad goals:

1. effectively prohibit non-stormwater discharges into storm sewers, and
2. reduce the discharge of pollutants to the maximum extent practicable (MEP).

[2] Amweg, E. L., D. P. Weston, et al. (2006). "Pyrethroid Insecticides and Sediment Toxicity in Urban Creeks from California and Tennessee." *Environ. Sci. Techno*l. **40**(5) 1700-1706; Weston, D. P., R. W. Holmes, et al. (2005). "Aquatic Toxicity Due to Residential Use of Pyrethroid Insecticides," *Environmental Science and Technology* **39**(24): 9778-9784. Holmes, R. W., B. S. Anderson, et al. (2008). "Statewide investigation of the role of pyrethroid pesticides in sediment toxicity in California's urban waterways." *Environmental Science and Technology* **42**(18): 7003-9. Hladik, M., L. and M. Kuivila Kathryn (2008). Occurrence of Pyrethroids in Bed and Suspended Sediments in California. *Synthetic Pyrethroids*. Washington, DC, American Chemical Society: 55-71. Ruby, A. (2008). "Pyrethroids Monitoring Data Compilation." Memorandum prepared by Armand Ruby Consulting for the California Stormwater Quality Association. July 8. Weston, D. P. and M. J. Lydy (2010). "Urban and Agricultural Sources of Pyrethroid Insecticides to the Sacramento-San Joaquin Delta of California." *Environmental Science and Technology* **44**(5): 1833-1840; Weston Solutions (2006). Toxicity Identification Evaluation (TIE) of County of San Diego and Copermittees Chollas Creek Stormwater Sample. September; Weston Solutions (2007). Toxicity Identification Evaluation (TIE) of County of San Diego and Copermittees Chollas Creek Stormwater Sample. August; Riverside County Flood Control and Water Conservation District (Riverside County) (2007). Santa Margarita Region Monitoring Annual Report Fiscal Year 2006-2007; Riverside County Flood Control and Water Conservation District (Riverside County) (2008). Santa Margarita Region Monitoring Annual Report Fiscal Year 2007-2008; Riverside County Flood Control and Water Conservation District (Riverside County) (2009). Santa Margarita Region Monitoring Annual Report Fiscal Year 2008-2009.

[3] Hunt, J., Markiewicz, D., and Pranger, M. (2010) *Summary of Toxicity California Watersheds, 2001-2009*. Prepared for the California State Water Resources Control Board Surface Water Ambient Monitoring Program. November.

To meet these goals, there are a number of things California stormwater programs have done or plan to do that may reduce pesticide-related toxicity in surface waters including:

- limiting or prohibiting pesticide use by municipal staff and contractors and/or requiring use of best management practices such as Integrated Pest Management (IPM);
- providing adequate and convenient options for disposal of unused pesticides and pesticide containers through household hazardous waste collection programs;
- educating residents about pesticide-related toxicity and proper use and disposal through distribution of educational materials, and development and implementation of media and advertising campaigns;
- educating residents about alternative methods and products through such programs as demonstration gardens and the acclaimed *Our Water Our World* program—a point-of-purchase program in hardware stores and nurseries;
- educating businesses about proper use and disposal, as well as alternative methods and products for use around their own properties and facilities; and
- educating professional pest control applicators about water pollution and working with them to develop pest management approaches that are protective of surface waters.

In addition, since the late 1990s, we have commented on the discontinuity between U.S. EPA's pesticide and surface water regulatory programs in pesticide-related meetings, conference calls, and dozens of letters regarding U.S. EPA actions related to pesticide and stormwater quality regulations. The goal of these comments is to encourage U.S. EPA to address pesticide water quality problems proactively and in a consistent, timely manner.

We are doing and will continue to do our part to address the problem of pesticide-related toxicity in surface waters.

Municipalities Cannot Solve Pesticide Water Pollution Problems on our Own

It is clear to us that our efforts alone will not be enough to solve the national problem of pesticide-related water pollution. From our research, it appears that ordinarily less than 1% of pesticides applied outdoors in urban areas washes into waterways—and it takes less than a fluid ounce of pesticides like pyrethroids flushed into stormwater runoff to cause toxicity in an urban creek. Our educational programs are some of the most developed in the country and they have won numerous awards for their quality and effectiveness. Nevertheless, even the best education programs are not 100% effective. It is clear that education alone will not solve this problem.

Unbelievably small pesticide concentrations—as little as a few nanograms per liter (pyrethroids)—can be toxic to aquatic organisms. Even if we could obtain all the land needed to treat urban runoff and raise the hundreds of billions of dollars necessary to buy the land, re-plumb urban runoff drainage systems, and install and operate treatment facilities, these facilities would be unlikely to remove pesticides reliably at such low levels.

A UP3 Project analysis of DPR data found that most pyrethroids used outdoors in urban areas are applied by professional applicators.[4] DPR tells us that these applicators generally comply with the U.S. EPA approved application instructions on product labels. Together with measurements of pyrethroid wash-off from outdoor surfaces,[5] these data tell us that pyrethroid applications by professionals outdoors on impervious surfaces around buildings are likely the primary source of pyrethroids in urban runoff. Under California law, municipalities cannot regulate pesticide applications.

However, we do not have to solve these problems at the local level. Federal and state pesticide regulators have full control over pesticide use. U.S. EPA controls the ability to use pesticides and specifies the application instructions on pesticide labels. If necessary, state regulators like California DPR can step in to regulate professional applicators.

Response to ANPR Questions 8-11. Pesticide regulation offers a practical and cost-effective approach to addressing problems associated with pesticides that flow to the Delta in urban runoff. The alternative contemplated in the ANPR—expansion of NPDES permitting for pesticides in urban runoff—would be ineffective, costly, and counterproductive. If U.S. EPA pesticide regulatory decisions do not fully address a pesticide problem, U.S. EPA—not municipalities—should be the one that has to resolve it.

Municipalities do not have the authorities necessary to prevent toxicity in their effluents: they cannot control pesticide labels—and in most states (including California) they cannot regulate pesticide users and cannot determine which pesticides can be sold in their cities. Since most urban dischargers do not have the ability to control pesticides, expansion of urban stormwater discharge permits would be ineffective toward addressing pesticide problems in the Delta.

Response to ANPR Question 2. We recommend that U.S. EPA's efforts to protect the Delta from pesticides involve use of its FIFRA authorities. Through our years of working with pesticide regulators, we have identified specific actions that U.S. EPA could take that would provide timely and effective protection for the Delta (and other surface waters) from pesticides in urban runoff. We outline these recommendations below.

Pesticide Regulation Can Protect Delta Water Quality

Since the founding of the Urban Pesticides Committee in the mid-1990s, CASQA member agencies have worked collaboratively with California Water Boards, DPR, and U.S. EPA, and municipal wastewater treatment plants to identify the best means to solve current urban pesticide-related water pollution problems and to prevent new problems. (Details about this collaborative effort are available at www.UP3Project.org.) Through this collaboration, both DPR and U.S.

[4] TDC Environmental (2010). *Pesticides in Urban Runoff, Wastewater, and Surface Water: Annual Urban Pesticide Use Data Report 2010.* Prepared for the San Francisco Estuary Partnership as part of the UP3 Project. June 28.
[5] Jorgenson, B. C.; Young, T. M., Formulation Effects and the Off-Target Transport of Pyrethroid Insecticides from Urban Hard Surfaces. *Environ. Sci. Technol.* **2010,** *44* (13), 4951–4957; Jorgenson, B. C.; Wissel-Tyson, C.; Young, T. M. *Factors Contributing to the Off-Target Transport of Pyrethroid Insecticides From Urban Surfaces*. University of California, Davis, CA, Unpublished work.

EPA Office of Pesticide Programs (OPP) have convinced us that they have the regulatory authority necessary to protect surface waters from pesticides.

In the last year, both DPR and OPP have initiated major changes that demonstrate a commitment to using their authorities to prevent water pollution:

- DPR is about to propose regulations that we expect to reduce levels of pyrethroids in urban runoff significantly. We anticipate that DPR will share its proposal directly with you.

- Over the last year, as OPP released its draft work plans for registration review of individual pyrethroid insecticides, it has (in response to input from CASQA and our partners) sequentially made improvements in pyrethroid registration review work plans to evaluate more fully pyrethroid use, fate, transport, and water quality impacts in urbanized watersheds. Further, in its recent responses to our comments on bifenthrin registration review, OPP recognized that pyrethroids are causing widespread and costly Clean Water Act compliance challenges that will need to be considered in its upcoming Registration Review decisions.

Recommendation – Support Pesticide Regulatory Actions to Protect the Delta. U.S. EPA Region 9 should support OPP's and DPR's actions to use their pesticide regulatory authorities to protect the Delta and all other surface waters. Through this ANPR, U.S. EPA will be assembling a body of scientific information about pesticides in the Delta. Should that body of evidence document one or more pesticide-related water pollution problems (e.g., pyrethroids in urban runoff), U.S. EPA should assemble the relevant scientific information, share it with both OPP and DPR, and provide scientific support for the development of appropriate pesticide regulations to address the problem.

Since the scope of pesticide-related water quality challenges in the Delta is not fully understood, U.S. EPA Region 9 can also provide information and resources to collaborate with other agencies (e.g., OPP, DPR, USGS) toward monitoring the highest priority pesticides, and toward providing the type and quality of information that pesticide regulators need for regulatory action. For urban runoff, the highest priorities are insecticide replacements for the pyrethroids use patterns associated with urban runoff pollution—fipronil and indoxacarb. We have enclosed a UP3 Project report identifying pesticides that should be priorities for monitoring and possible regulatory action to protect urban runoff.[6]

Recommendation – Provide Consistent Improved Consideration of Surface Water Quality in U.S. EPA's Pesticide Regulatory Decisions. In recent years, we have observed inconsistency in the way OPP addresses urban water quality in pesticide regulatory decisions. This inconsistency appears to stem from the fact that U.S. EPA OPP has several groups across two divisions (Environmental Fate & Effects Division, Antimicrobials Division) that conduct pesticide environmental risk assessments and additional groups in the Registration, Re-Evaluation and

[6] See Table 2 in TDC Environmental (2010). *Pesticides in Urban Runoff, Wastewater, and Surface Water: Annual Review of New Scientific Findings 2010*. Prepared for the San Francisco Estuary Partnership as part of the Urban Runoff Pollution Prevention Project. The priorities in this report do not include indoxacarb because indoxacarb was not registered in California for a priority use pattern (outdoor around buildings) until after this report was published.

Antimicrobials Divisions that make water quality-related risk management decisions. Water quality would be better protected if all of these groups had the tools, information, and management oversight to make consistent decisions that recognize the importance of coordination with the Clean Water Act and U.S. EPA's responsibilities to protect the nation's surface waters, including the Delta.

Recommendation – Require Pesticide Manufacturers to Test the Same Species that U.S. EPA Office of Water (OW) Has Approved for Compliance Testing. When conducting toxicity testing to comply with NPDES permits, municipalities are ordinarily required by permitting authorities to follow U.S. EPA OW-approved toxicity testing procedures, which employ relatively sensitive species.[7] Since pesticide registrants rarely submit toxicity data for these sensitive species, OPP often does not have the data necessary to predict toxicity test failures when reviewing a pesticide registration. While U.S. EPA is exploring computational methods to predict pesticide toxicity, we would prefer a more straightforward approach—OPP should require pesticide manufacturers to test the same species that OW has approved for compliance testing. (This would require OPP to change 40 CFR Part 158).

Recommendation - Revise OPP's Pesticide Cost/Benefit Analyses to Include Costs Associated with Water Pollution. OPP's current cost/benefit approach is incomplete and therefore inaccurate. On the environmental cost side, the impacts on urban surface waters are underrepresented. On the economic benefit side, the mounting cost to state and local public agencies of dealing with the regulatory and legal liability caused by water pollution from pesticides must be added to the calculation and considered against the private gains made by users and manufacturers.

The costs and benefits of urban uses should be considered separately from agricultural uses. The needs, costs, and benefits of pesticide use are very different in these two environments and the cost/benefit analyses should reflect that fact. Costs and benefits for less polluting alternatives, like IPM and non-pesticide alternatives, must also be factored into U.S. EPA's decisions.

Recommendation – Consider Providing Funds to Support Continuation of the Urban Pesticides Committee and the UP3 Project's Scientific Activities. The UP3 Project convenes the Urban Pesticides Committee, which is the center for the collaboration between CASQA and our partner agencies that are working to address pesticide-related water pollution in urban areas. The UP3 Project also provides scientific support for the partners, through reports, specialized data analysis, and identification and interpretation of relevant agency reports and scientific literature.

Since 2003, the UP3 Project has been supported primarily by a series of grants from the California State Water Resources Control Board, supplemented by discharger funding. The last of these grants is now ending. CASQA and its members have substantially increased our funding

[7] See 40 Code of Federal Regulations Part 136.3, Table 1A. Approved methods include *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 2002 (EPA 821-R-02-012), Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 2002 (EPA-821-R-02-013), and *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, 2002 (EPA-821-R-02-014). Regulators often require use of companion methods developed by USEPA for specific geographic regions, such as *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, 1995 (EPA/600/R-95/136).

of this line of work, but it is not possible or appropriate for us alone to provide full funding for this nationally significant collaboration with implications that extend beyond California urban runoff.

Urban Runoff Modeling for Pesticides – Special Opportunity for Improvements

When reviewing pesticide registration applications and during its periodic Registration Reviews, U.S. EPA OPP uses environmental modeling to estimate environmental concentrations of pesticides. These estimates are a key step in protecting the Delta and other waterways receiving urban runoff discharges. OPP currently has limited capacity to model pesticides in urban runoff. For procedural reasons, OPP prefers to adapt its existing agricultural runoff models for use in urban runoff modeling. The adaptation will need to account carefully for the important role of impervious surfaces in pollutant wash-off and transport into urban waterways. Available information from the decades of scientific and engineering literature on pollutant wash-off and transport in urban runoff should be sufficient to provide the basis for the model adaptations.

Recommendation – Improve U.S. EPA OPP's Urban Runoff Modeling for Pesticides. An important action that U.S. EPA can take to protect the Delta (and all of the nation's urban waterways) from pesticides would be to establish an effort to develop quickly the model adaptations that OPP needs, by bringing together urban runoff modelers from OPP with their colleagues in U.S. EPA's Office of Water and Office of Research and Development, who have extensive experience with modeling pollutants in urban runoff and detailed familiarity with the relevant scientific and engineering literature. This would be a short-term effort. To provide timely protection for the Delta, we recommend that this effort be convened in 2011 and that model adaptations be completed in time for pyrethroid Registration Review environmental modeling (i.e., by about mid-2013).

In addition to improved modeling tools, U.S. EPA OPP needs a better urban runoff modeling scenario—or a small set of urban runoff modeling scenarios—so as to better represent realistic urban pesticide use and runoff conditions. The current single urban scenario—a watershed comprised of 0.25-acre lot single family homes surrounded by lawn—is not representative of pesticide use locations in the Delta or in most of the nation's urban areas. Use of only this scenario prevents EPA from fully understanding the water quality impacts of use of pyrethroids and other pesticides in urban waterways. More realistic modeling scenarios would better inform both risk assessment and risk management.

With available information, it would be relatively straightforward to build urban impervious area scenarios that better represent use locations and drainage design in the nation's urban areas. Since U.S. EPA's pesticide modeling goal is to model realistic high runoff scenarios, urban runoff modeling scenario development should be informed by the urban design and land use patterns in watersheds known to have relatively high levels of pesticides in water and sediments (e.g. in the Delta area, the Pleasant Grove Creek watershed in Roseville, California and the Kirker Creek watershed in Contra Costa County, California).

As compared to the 0.25-acre residential lot with lawn scenario, the Delta's urban watersheds have very different land use patterns and landscape design. These watersheds have a mix of

urban land uses where pyrethroids and other pesticide are applied, all of which have more impervious area per acre (denser residential, multifamily, and commercial land uses). The landscapes in these watersheds commonly include impervious area immediately next to buildings, much smaller lot sizes, highly compacted soils, and far less lawn.

We would be pleased to provide information to support development of pesticide runoff model adaptations and appropriate urban runoff scenarios based on the characteristics of watersheds with elevated pesticides levels.

Conclusion

U.S. EPA Region 9's Water Division can best protect the Delta from pesticides in urban runoff by joining our collaborative effort to work with U.S. EPA pesticide regulators, DPR, California Water Boards, and wastewater agencies to bring about long-term changes that will solve current problems and prevent future problems. U.S. EPA should use pesticide regulatory actions under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)—not expanded NPDES permits for pesticides in urban runoff under the Clean Water Act—as the means for addressing urban pesticide-related water pollution in the Delta.

Thank you for your consideration of our comments. If you have any questions, please contact Dave Tamayo, CASQA Pesticide Subcommittee Co-Chair, at (916) 874-8024 (tamayod@SacCounty.net); or CASQA Executive Director Geoff Brosseau at (650) 365-8620.

Sincerely,

Scott Taylor, Chair
California Stormwater Quality Association

Enclosure: *Pesticides in Urban Runoff, Wastewater, and Surface Water: Annual Review of New Scientific Findings 2010.* Prepared by TDC Environmental. Prepared for the San Francisco Estuary Partnership as part of the Urban Runoff Pollution Prevention Project.

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