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cc:

Subject: Stormwater Runoff Impact Studies

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>Subject: Stormwater Runoff Impact Studies

>X-Mailer: AOL 3.0 for Windows 95 sub 62

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>Stormwater Dischargers and others,

>

>Previously I e-mailed you a set of comments that I prepared on the stormwater  
>runoff water quality impact studies that are needed to eliminate the over-  
>regulation of urban area stormwater runoff that will occur through the use of  
>current US EPA water quality criteria and state standards based on these  
>criteria as goals for the stormwater runoff BMP ratcheting down process.  
>Presented below is a copy of my letter to the State Water Resources Control  
>Board that discusses these issues. It also provides some new information on  
>copper and other constituents in San Francisco Bay as well as the  
>ineffectiveness of detention basins for treating urban area stormwater runoff  
>that is pertinent to the need to conduct studies of the type described in my  
>previous e-mail. If you or your colleagues have questions on these issues,  
>please bring them to my attention.

>

>--FRED

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>

> February 26, 1998

>John Caffrey, Chairman

>State Water Res Control Board

>PO Box 100

>Sacramento, CA 95812-0100

>

>Dear Chairman Caffrey:

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> In January 1998 in connection with the review of the Orange County stormwater  
> permit appeal filed by EHC, I provided the State Board with a summary  
> statement on the inappropriateness of using current US EPA water quality  
> criteria and state standards/objectives based on these criteria, as the BMP  
> ratcheting down goals for managing urban area stormwater runoff water quality  
> impacts. I pointed out in my discussion that the current US EPA water  
> quality  
> criteria were not developed for urban area stormwater runoff type situations.  
> Their application to these situations can readily lead to massive expenditure  
> of public funds in the construction of structural BMPs ultimately involving  
> the development of advanced wastewater treatment facilities in order to  
> comply  
> with the CWA requirement of no more than one exceedance of a water quality  
> objective in the stormwater runoff every three years. Such expenditures  
> would not be addressing real water quality - use impairment issues, but would  
> be spending funds to address "administrative" exceedances of water quality  
> objectives associated with the overly protective nature of US EPA water  
> quality criteria when applied to urban area stormwater runoff. I wish to  
> follow up on my January 1998 submission on this topic, with a discussion of  
> the type of studies needed to develop the information that can serve as the  
> foundation to more appropriately regulate urban area stormwater runoff  
> than is  
> being done today.

>

> As an example of the inappropriateness of using US EPA water quality  
> criteria  
> as goals for urban area stormwater runoff chemical constituent control, the  
> San Francisco Estuary Institute (SFEI) released its 1996 annual report of the  
> studies that this Institute has been carrying out on the water quality  
> characteristics of San Francisco Bay. One of the areas of particular concern  
> in San Francisco Bay is the exceedances of copper and nickel water quality  
> criteria/objectives. I have previously indicated that based on past years'  
> data developed by SFEI that there is no evidence, after extensive monitoring,  
> for the exceedance of the copper site-specific criterion/objective  
> representing a significant water quality use impairment in San Francisco Bay.  
> This exceedance is an "administrative" exceedance which reflects the overly-  
> protective nature of the US EPA water quality criteria and state standards  
> based on these criteria, including site-specific standards/objectives, when  
> applied to San Francisco Bay-type waters.

>

> The December 1997 SFEI report which covers 4 years of fairly intensive  
> monitoring of San Francisco Bay states,

>

> "Although copper and nickel are of current regulatory interest, there is no  
> conclusive evidence of biological effects from exposures to those  
> contaminants  
> in the Estuary. Several other trace elements (arsenic, silver, lead and  
> zinc)  
> are usually below guidelines and/or have shown no evidence of bioaccumulation  
> or association with biological effects in the Estuary."

>

> Being "of regulatory interest" means that they exceed site-specific or  
> national water quality criteria/standards, yet after four years of data  
> collection in various parts of San Francisco Bay, including extensive  
> toxicity  
> testing using the same test organism as was used to develop the copper  
> criterion, there is no evidence that this exceedance is associated with a  
> water quality use impairment. While no one can reliably state that there are  
> no significant water quality use impairment problems due to copper, nickel,  
> lead, zinc, silver and arsenic in San Francisco Bay associated with urban  
> areas stormwater runoff, it is clear that these problems, if they exist, are  
> subtle and are not readily discernible. Under these conditions, it is

>appropriate to work toward a more appropriate regulatory approach which  
>addresses the administrative exceedance of the criteria within the Bay waters  
>and the stormwater runoff to the Bay while continuing to search for more  
>subtle yet undetected problems associated with urban stormwater runoff to the  
>Bay. Certainly it is inappropriate to cause the public to spend large  
amounts  
>of money controlling chemical constituents in stormwater runoff under  
>conditions where reasonable searches for problems have been conducted that  
>have failed to find problems with the exceedance of the water quality  
>standard. The San Francisco Bay situation is not atypical. It is situations  
>such as this that provide the basis for why urban stormwater dischargers in  
>cooperation with the Water Resources Control Board, the regional boards and  
>others need to conduct studies to define the real water quality use  
>impairments associated with urban area stormwater runoff.

>  
> Not only is there a problem with using the exceedance of a water quality  
>criterion/objective as a measure of a water quality problem for which the  
>public would be spending large amounts of money so that it does not occur  
more

>than once every three years, there are also significant problems with today's  
>so-called stormwater runoff BMPs. Recently, the US EPA Region 5, and  
>Washington, D.C. and the Northeastern Illinois Planning Commission, as  
well as

>the Illinois EPA, held a conference in Chicago devoted to retrofitting  
>stormwater runoff conveyance structures for protection of receiving water  
>water quality. One of the papers presented at this conference by John  
Maxted,

>Division of Water Resources, Delaware Department of Natural Resources and  
>Environmental Control entitled: "The Effectiveness of Retention Basins in  
>Protecting Stream Biota and Physical Habitat," discussed a two year study  
>conducted by that state agency to determine the benefits of installing  
>detention basins for "treating" urban area stormwater runoff. Detention  
>basins are commonly used "BMPs" for urban area stormwater runoff. Mr. Maxted  
>however found that a detention basin "treated" stormwater runoff did not  
>change the aquatic life in the receiving waters compared to waterbodies  
>receiving the same kind of stormwater runoff without passage through a  
>conventional BMP detention basin.

>  
> These results are in accord with what would be expected based on aquatic  
>chemistry, aquatic toxicology and water quality considerations. Detention  
>basins and filters, i.e. the common stormwater runoff BMPs that are  
frequently  
>used today, were developed based on hydraulic considerations without proper  
>consideration of water quality issues. It has been known since the late  
1960s

>that heavy metals and many other particulate constituents are in non-toxic,  
>non-available forms and therefore, their removal in stormwater runoff by a  
>detention basin or filter, would not be expected to impact the beneficial  
uses

>of the receiving waters for the runoff. Mr. Maxted's data clearly  
>demonstrates this situation.

>  
> As discussed in my previous correspondence, there is need to determine what  
>real water quality use impairments are caused by urban area stormwater runoff  
>and where real significant water quality use impairment problems are found,  
>develop appropriate BMPs for their control. Attached is a statement  
>summarizing the key areas that need attention. The development of  
information

>in each of the areas summarized in the attached statement will enable the  
>State Board and regional boards, stormwater dischargers, environmental groups  
>and others to work together to eliminate the need for the massive,  
unnecessary

>expenditures to control certain regulated chemical constituents in stormwater  
>runoff. It will also provide the technical information needed to define the

>real water quality use impairments that are occurring associated with urban  
>area stormwater runoff and thereby enable stormwater dischargers and the  
State

>Board and regional boards to focus resources on developing appropriate  
control

>for real water quality use impairment problems. I have developed a more  
>extensive discussion of the characteristics of the needed studies which is  
>available from me upon request. Further backup information on these  
issues is

>available from my website (<http://home.pacbell.net/gfredlee/index.html/>).

>

> To the extent that there is interest, I would be happy to work with the  
State

>and regional board's staff and others in helping to formulate and implement  
>the needed studies and the use of the results to develop a more appropriate  
>regulatory approach for NPDES-permitted urban area stormwater runoff water  
>quality management. Please contact me if you have questions on these  
>comments.

>

Sincerely yours,

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FRED

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G. Fred Lee, PhD, DEE

>Copy to: WRCB Members

> W. Pettit

>GFL:oh

>Enclosure

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