

## G. Fred Lee &amp; Associates

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Rick

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May 8, 1997

Richard Woodard  
CALFED Bay-Delta Program  
Water Quality Technical Group  
1416 Ninth Street; Suite 1155  
Sacramento, CA 95814

Dear Rick:

I wish to follow up on the April 1, 1997 meeting of the WQTG to provide a few comments on the Urban and Industrial Stormwater Program. You may recall that in early January when I first obtained a copy of the December 1996 Water Quality Task Group meeting minutes and reviewed the Urban and Industrial Stormwater Section, I contacted you indicating that whoever developed that section has limited understanding of urban area highway stormwater runoff issues. I provided you with a detailed discussion of many of these issues as they should be addressed by CALFED. In February 1997, I obtained the next revision of the Urban and Industrial Stormwater Runoff program description and found that it still contained significant technical problems in the proposed approach for managing so-called water quality impacts. While the words have been changed, the basic fundamental issues were still improperly addressed. At the meeting on April 1, 1997 Tom Mumley also indicated that he had significant problems with some aspects of the approach, especially those sections associated with the so-called remediation approaches.

Late in the afternoon on April 1, 1997 Darrel Slotton made a presentation on mercury issues which, unfortunately, you could not attend. He provided the kind of data that demonstrates the point that I have been trying to bring home to CALFED management in my discussions of the proposed programs for managing water quality problems associated with the Delta, namely that the approach now being used focusing on total constituents or even dissolved constituents is not technically valid. Large amounts of public funds can be spent trying to control the mercury problem that exists in the Delta where little or no impact will develop due to the fact that the funds are being spent without regard to basic aquatic chemistry, aquatic toxicology and hydrodynamics-mixing issues. The approach being used is a 1960s level of understanding with respect to using the science and engineering that has been available since that time in formulating technically valid, cost-effective water quality management programs.

I felt that the Parameter Assessment team approach and the discussions held at the April 1, 1997 meeting addressed key issues that need to be addressed by CALFED management. There were a number of people at the morning meeting on April 1, 1997 who informed the CALFED Delta water quality management team that the Basin Plan objectives approach in which the numeric values that were used to establish exceedances of water quality objectives which causes a constituent to get on the 303d list is not a valid approach for formulating CALFED water quality management programs. Even though there were some individuals at the meeting who wanted to take the mechanical approach which ignores aquatic chemistry of constituents of simply using the

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worst-case US EPA criterion or state standards based on these criteria as the goal for remediation programs in the Delta, I am sure that if you had this properly peer reviewed by individuals who understand aquatic chemistry and aquatic toxicology and water quality that you would find that that approach is inappropriate in terms of developing technically valid, cost-effective control programs to fix what is "broken" in the Delta. It is important that the CALFED program not ignore aquatic chemistry and toxicology in defining water quality problems and developing control programs for the constituents responsible for real water quality use impairments in the Delta.

I have provided you and others associated with CALFED management with a number of comments about stormwater runoff water quality impact evaluation and management in connection with CALFED's proposed urban area and industrial stormwater runoff water quality control program. In these comments, I have stressed the fact that after intensive study, typical urban area and highway stormwater runoff has not been found to be significantly adverse to the beneficial uses of the receiving waters for the runoff. This arises from several factors, the most important of which is the chemical forms of the constituents in runoff as well as the short duration of exposure that aquatic organisms can receive associated with the runoff event. My purpose in contacting you now is to bring to your attention a preprint copy of a paper that I have recently completed on assessing stormwater runoff water quality impacts from hazardous chemical sites such as Superfund sites. While street runoff rarely is adverse to the beneficial uses of receiving waters for the runoff, industrial and hazardous chemical site stormwater runoff can be significantly adverse to receiving water water quality. This paper describes some of the issues that need to be considered in evaluating the water quality impacts of stormwater runoff from any site with particular emphasis on those sites that tend to have more hazardous chemicals in the runoff waters.

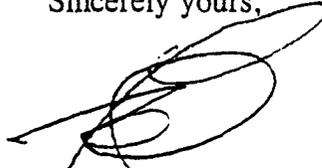
I also wish to bring to your attention a copy of poster items I used in a recent presentation that I made at the American Chemical Society national meeting that was held in San Francisco devoted to chromium regulatory issues. In connection with evaluating the water quality impact of chromium discharges to Putah Creek, I have become familiar with recent information on the toxicity of chromium VI. It is found that it is far more toxic than generally recognized. While this problem exists in tributaries of the Delta, I do not know at this time whether there are potential chromium problems in the Delta since I have not seen chromium data on the Delta that has been measured with sufficiently sensitive analytical procedures to determine whether it is a potential problem. As I indicated in the enclosed paper, whenever the total chromium is above about  $0.5 \mu\text{g/L}$ , there is potential for chromium VI toxicity. The next step is to determine whether the chromium is present as chromium III or as chromium VI. It appears that chromium VI targets the same types of organisms as the organophosphorus pesticides, i.e. certain forms of zooplankton. It will be important to examine any toxicity to zooplankton with respect to whether part of the toxicity is due to chromium VI.

One of the issues of increasing concern is that studies conducting in various location sin the US have shown that total chromium in urban area stormwater runoff is frequently above  $1 \mu\text{g/L}$ . This is appears also to be true for dissolved chromium, which is likely chromium VI.

Should it be found that chromium VI is a cause of aquatic life toxicity in urban area stormwater runoff, it is important to note that it will not be removed in detention basins that the CALFED WQTG has proposed to use to manage urban area stormwater runoff since it is in a soluble form and does not precipitate.

Please find enclosed a copy of a letter that I have sent to P. Coulston on the April 30, 1997 water quality meeting that was held at the SFEI. [As we discussed, there is obvious need for better coordination in developing a monitoring program that can be reviewed by the stakeholders.] As I indicated to Pat, if I can help in this area, please contact me.

Sincerely yours,

A handwritten signature in black ink, appearing to be "G. Fred Lee", written over a horizontal line.

G. Fred Lee, PhD, DEE

Copy to: L. Snow

GFL:oh  
Enclosure