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Subject: December 3, 1997 WQTG Meeting
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Via e-mail

January 19, 1998
Richard Woodard
CALFED Bay-Delta Program
Water Quality Technical Group
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Dear Rick:

I am contacting you since no one else's name was present on the minutes for the December 3, 1997 Water Quality Technical Group meeting to provide comments on issues that I find need further discussion or attention.

Overall, I find that these minutes do not necessarily discuss problem areas in the CALFED program that were raised by the participants at the December 3 meeting. It is important for those responsible for the CALFED program and especially the water quality components of it to acknowledge the problems that exist in the program and face them on rather than ignore them. The current situation is leading to a festering of increasing concern by the technical community that CALFED's water quality program is running on its own direction with little regard to what the technical community familiar with Delta water quality issues would consider to be a valid technical approach for formulating water quality management within the Delta. As an example of this type of problem, the minutes state on the first page under "Three Alternatives Description,"

"Rick Woodard gave some background on his activities in developing the CALFED Preferred Alternative and provided handouts describing those alternatives; copies of which are attached hereto."

There is no mention in the minutes, however, of the question I raised at the end of your presentation of what role water quality has played in formulating the three alternatives. Specifically I asked whether the issue of the high mercury fluxes that enter the Delta each year from Cache Creek via the Yolo Bypass have been considered in selecting the alternatives. As I pointed out in commenting on this situation, consideration should be given to whether the increased diversion through or around the Delta during high flow periods could shunt high concentrations of mercury to areas where they are not now present. This issue should have been considered in formulating the alternatives. It is well understood by those familiar with the Cache Creek mercury situation. One of my colleagues commented after the meeting that the CALFED process appears to be another attempt to justify a peripheral canal with little regard to many of the key water quality issues that must be addressed if CALFED is to meet its mandate of "fixing" the Delta. Fixing the Delta is more than simply diverting water south by one of three alternatives.

On page 1, under "Draft Implementation Plan," the statement is made that "Comments of the Water Quality Technical Group regarding the Draft Implementation Plan Outline are strongly encouraged." A review of this

Outline, however, shows that it provides inadequate detail to provide the basis for judging what will be covered in each of the topic areas. Without this information, it is inappropriate to try to comment on what might be covered by those who have developed the Outline. The key to the review of the Implementation Plan will be for those responsible to flush out the outline in sufficient detail so that it can be evaluated in terms of its adequacy of covering the topic in sufficient detail to properly formulate a credible Implementation Plan.

With respect to page 2, "Status of the Category III Project Proposals," there is concern about the review process that was used relative to selecting projects that are of the greatest importance to establish a technically valid direction for CALFED activities in the water quality evaluation and management area. Further, there is need for CALFED Water Quality Technical Group management to provide the Water Quality Technical Group participants with an overview discussion of what each of the "water quality" CALFED-supported projects will be covering. This will enable the Group to evaluate whether the proposed projects will likely provide the kind of information that CALFED needs to properly formulate a technically valid, cost-effective water quality evaluation and management program. It is urged that this type of presentation be made at a future Water Quality Technical Group meeting. I feel it would be appropriate because of the limited number of water quality proposals that were accepted that a copy of the proposals be made available to those interested for their review and comment.

Comments on Minutes of Meeting, CALFED Water Quality Technical Group, December 3, 1997

These are not minutes of a meeting, but a summary of issues selected by the author to summarize some of the issues raised during the meeting.

On page 1, "Program Status--Issues Raised," with regard to the alternative "peripheral canals," no mention is made of the issue I raised about water quality components' potential impacts of the three alternatives. This is a significant omission from the so-called minutes.

Page 2, "Draft Implementation Plan," insufficient information has been provided by S. Holmgren to provide a basis for commenting on the draft. As discussed above, CALFED management and their consultants should flush out the outline to a sufficient extent to enable interested participants to comment on it.

Page 2, under "Issues Raised," fourth bulleted item, mentions the Adaptive Management Plan. Repeatedly at Water Quality Technical Group meetings adaptive management has been the catch-all answer as to how issues would be addressed. I attended the Adaptive Management seminar organized by Jim Williams and found that Adaptive Management as it is typically defined and implemented may have limited applicability to CALFED's Water Quality Management Program. I will be discussing this issue in a separate correspondence where I will be suggesting that those responsible for the CALFED Water Quality Technical Group activities discuss what they mean by Adaptive Management relative to the normal definitions that are used for this approach. I believe that such discussions would be extremely helpful to CALFED management and the Water Quality Technical Group participants to understand what adaptive management is as applied to water quality issues and how it is going to be implemented in the CALFED Water Quality Management Program. Those responsible for the Water Quality Management Program should develop several scenarios of potential issues, such as the diazinon toxicity issue, the mercury bioaccumulation issue, the excessive fertilization of the Delta issue, etc., where a discussion of how Adaptive Management would be used to formulate the approach that will be used by CALFED in addressing the issues is presented.

On page 3, under "Parameter Assessment Team Recommendations," second paragraph, comments are presented about how the water quality parameters of concern were originally established during a year-long process. One of the comments that should have been included in the "minutes" is that several of

those that were not included in the original group that established the constituents of concern find that the approaches used seem to reflect the bureaucratic regulatory approaches and do not reflect what is known by the technical community about how to properly assess the water quality significance of parameters of concern upon which large amounts of public funds will be spent in trying to control the input of the constituents to fix the Delta from a water quality perspective. It is my recommendation to CALFED management that they need to start over with respect to parameters of concern to try to gain consensus among the active participants in the Water Quality Technical Group on the parameters that should receive consideration as a parameter of concern where specific discussions are held as to the reasons why particular parameters listed as a parameter of concern should receive special attention by CALFED, what water quality issues with respect to this parameter need to be considered and how best to proceed to establish a program to address determining whether the parameter of concern is a real cause of water quality use impairment in the Delta or its tributaries that impact Delta resources. If the CALFED Water Quality Technical Group does not go back and visit each of these parameters in the near future, then it is going to find itself being severely criticized for developing an inappropriate approach for selection of parameters of concern.

Page 3, fourth paragraph, third bulleted item, states "Add bioavailable phosphorus, add nitrogen and nitrite under nutrients." It is unclear as to what is meant by "nitrogen." This is an inappropriate term. Nitrate, nitrite, ammonia, organic nitrogen and nitrogen gas are all nutrients. This problem exists at several locations in these so-called minutes.

Page 4, first paragraph, is an appropriate statement of the approach that should be used where all aspects of the formulation of the CALFED Water Quality Program are open to full discussion by anyone interested.

On page 4, first paragraph under "Issues Raised," several participants raised questions about the approach that has been adopted by CALFED management of not responding to participants' comments. When I commented at the meeting that you informed me that it was CALFED policy not to respond to participants' comments, J. Heath indicated that my comments on this matter were inappropriate. However, subsequently you confirmed that this is, in fact, CALFED management policy. From my perspective, CALFED management is making a significant error in adopting this policy. If someone is willing to take time to comment on CALFED Water Quality Program issues, then these comments should readily be made readily available to all interested parties, and CALFED management should discuss their approach toward addressing the issues raised by the commentor. Any group that proposes to spend many tens of millions of dollars of public funds on fixing the Delta from a water quality perspective must be prepared to conduct a full, open review of its activities if it wishes to avoid major conflicts which could be seriously detrimental to the credibility of all of CALFED. Under the current approach, there is growing concern about the CALFED water quality management approaches in meaningfully addressing true water quality issues of the Delta. The current approach for conducting the water quality program development and implementation where infrequent meetings of limited duration are held to discuss issues is causing a festering of increasing discontent with the CALFED Water Quality Program. As discussed herein, it is becoming increasingly clear that the CALFED Water Quality Program is a somewhat perfunctory adjunct to legitimizing some sort of peripheral canal. The environmental groups have already joined together to develop a joint discussion of their concerns about the inadequacies of the Water Quality Program. If this situation does not change so the Water Quality Program is a legitimate, full integrated partner in CALFED, then there will be significant problems for CALFED management and the whole CALFED program which could seriously erode the confidence that the public has in the ability of the current management to provide effective leadership for fixing the Delta. There is a substantial body of knowledgeable individuals who appropriately find that the fixing of the Delta must focus on Delta resource issues first and diversion of water south second. To develop three alternatives for diverting water south without considering water quality issues is inappropriate and strongly contrary to CALFED's future credibility.

When I first saw the Water Quality Program as formulated in December 1996, I provided CALFED management with detailed comments on the significant problems with what I found to be the way by which this Program was being formulated and proposed to be implemented. During the past year, limited progress has been made in addressing the issues of concern. While those responsible for CALFED management may discount my comments as those of an unsponsored individual, as it turns out, there are several other unsponsored individuals as well as several other groups of individuals who have come to the same conclusions as I have on the inadequacies of the current CALFED Water Quality Management Program.

A year ago I recommended that the CALFED Water Quality Technical Group start over with respect to identifying constituents of concern, target levels, approaches for addressing constituents, research needs, etc. During the past year, I have found that my initial suggestions were appropriate. I urge again that CALFED management start over with respect to formulating a water quality management program for fixing the Delta. The first step in this program is to formulate an approach for defining what real water quality impairments are occurring in the Delta due to chemical constituents and pathogenic organism input to Delta water. A second category of concern is chemical constituents and pathogenic organism indicators that are adverse to Delta tributary waters which may in some way impact Delta resources, i.e. fish spawning of migratory fish. There is a poor understanding by CALFED management and the technical community as to what role chemical constituents which are pollutants in some locations at some times in certain waterbodies play in causing real pollution - use impairment within the Delta. The current CALFED Water Quality Technical Group approach will not adequately or reliably define these issues.

In order to facilitate communications, I suggested at the December 3, 1997 meeting that CALFED should post the comments made by various individuals on a web site so that others can review them. During the discussions at the PAT meeting, I found that a number of others had independently commented on the same issues along the same lines as I had commented. Neither they nor I have found that the CALFED Water Quality Technical Group management has adequately addressed our comments through changes in approaches/policy. The response to my suggestion presented on page 4, second paragraph of the minutes under "Issues Raised," is "Anyone who wants copies of the letters sent to CALFED should send a request to Judy Heath or Rick Woodard." Does this mean that Judy Heath or you are willing to make copies of letters received available to anyone who is interested? If so, then I request that I receive a copy of past and all future letters pertinent to water quality issues.

Comments on Minutes of Meeting,
Water Quality Parameter Assessment Team (PAT),
December 3, 1997

Page 2, under "Comments made," first bulleted item, states "Nutrients are a problem because there are not regulatory standards." As an individual who has worked over 37 years on the relationship between aquatic plant nutrients and excessive fertilization of waterbodies, I can unequivocally state, as I did at the meeting but was not recorded in the minutes, that we are fortunate that there are no standards for nutrients. There have been several attempts to develop single numeric values for nutrients. All of them have failed because it is not possible to reduce nutrient impacts on excessive growth of aquatic plants to a single numeric value for a nutrient concentration. While the same kinds of problems exist for heavy metals and many other constituents, these problems are largely ignored by the regulatory community and especially by the way in which the US EPA implements its water quality criteria into state standards and NPDES permit discharge limits.

There is no question that the Delta is experiencing excessive fertilization which impairs its use for recreation and for domestic water supply. There are some who advocate that limiting the nutrient input to the Delta would be detrimental to the fisheries and other aquatic resources. There is no question that this will be the case. Several years ago we published a review paper entitled, "Effects of Eutrophication on Fisheries" (Lee, G.F. and Jones, R.A., "Effects of Eutrophication on Fisheries," Reviews in Aquatic Sciences,

5:287-305, CRC Press, Boca Raton, FL, 1991), which discusses the conflict between domestic water supply water quality issues, recreational use of waterbodies and excessive fertilization and aquatic life resources development. It is important to understand this conflict and to develop a balance between excessive growth of aquatic plants and fisheries and other aquatic life resources within the Delta and its tributaries.

Page 2, under "Comments made," the fifth bulleted item, states, "A problem should first be recognized by regulatory and resource agencies." This is a dangerous approach. The problem should be recognized by the public. Regulatory resource agencies have a wide variety of pressures on them which influence their ability to recognize real water quality use impairments.

On page 2, under "Comments made--General," no mention is made of the comments that were made by several individuals about needing to start over in identifying constituents of concern and target levels. The way these so-called minutes are developed, it appears that the PAT is only to address new constituents. The PAT should address all constituents that have previously been suggested as constituents of concern for CALFED attention.

Page 2, last paragraph under "Target Ranges," the issue of target ranges needs to be discussed at a meeting where adequate time is provided for discussion of these issues. The CALFED Water Quality Technical Group approach for establishing target ranges is not technically valid. It could readily result in large-scale expenditures of public funds that have little or no impact on fixing the Delta. The statement is made in this paragraph,

"Many meetings have already been conducted to determine the existing target ranges; however, if new information becomes available, we could go back and revisit the target ranges."

It is essential that the CALFED Water Quality Technical Group visit for the first time from a credible perspective, the establishment of target ranges. This issue has been brought up at several Water Quality Technical Group meetings by various individuals. It needs to be addressed. To continue the approach that CALFED management is currently following of listing copper as a constituent of concern with a target range equal to the US EPA's water quality criterion because the concentrations within the Delta exceed the criterion value is fundamentally flawed and technically invalid. A panel of experts who reviews this situation would come to the conclusion that there is no known water quality problem due to the exceedance of the overly-protective water quality criterion for copper within the Delta. Extensive studies have been conducted within San Francisco Bay and the lower part of the Sacramento River which have demonstrated that while copper present in the Bay and Delta exceeds site-specific water quality objectives, this copper is in a non-toxic, non-available form and represents an administrative exceedance of the water quality criterion/standard. CALFED should not be spending public funds to address administrative exceedances; it must focus the funds available on solving real water quality use impairments that are significantly affecting the Delta's resources.

Page 3, last bulleted item at the top of the page, states, "The target ranges of the Regional Boards are used in some cases and it should be a policy not to second guess the decisions of the Regional Boards." This is another of the statements that were made at the meeting which reflect a lack of understanding of the regulatory process that exists today with respect to establishing water quality criteria. Those familiar with how water quality criteria are established by the US EPA know that they are designed, in general, to represent worst-case conditions, such as what occur in Lake Superior water. Those familiar with aquatic chemistry, aquatic toxicology and water quality understand that Delta waters can, in general, have much higher concentrations of many regulated constituents than US EPA water quality criteria and still be protective of the beneficial uses of the waters for fish and aquatic life and other beneficial uses.

The issue is not one of trying to second guess the regional boards or the US EPA where CALFED would be establishing its own water quality criteria. The

regional boards are trapped into a technically invalid regulatory process that is designed to be protective under worst-case conditions without regard to the technical validity or cost-effectiveness of spending the public's funds for control of chemical constituents. CALFED, on the other hand, has an obligation to the citizens of California who voted the funds for support of CALFED to ensure that funds spent for controlling water quality problems address real water quality problems - use impairments and are not piddled away on addressing administrative problems due to the inability of the US EPA to formulate technically valid, cost-effective water pollution control programs that focus on chemical impacts, rather than chemical concentrations.

It is important to understand that the current US EPA administration understands and admits that there are significant over-regulation problems. They are attempting to try to correct these through its Announced Proposed Rulemaking for water quality standards. Hopefully, through reauthorization of the Clean Water Act, it will be possible to eliminate or at least significantly reduce the over-regulation that is occurring now with respect to many of the constituents of concern initially selected by CALFED.

It is important to note, however, that there are situations of under-regulation which again reflect the way in which the US EPA has developed its water quality criteria. For example, chromium VI has been found to be toxic to aquatic life at a factor of 20 less than the chronic criterion for chromium VI. Further, there are a number of chemical constituents for which there are no criteria/standards. This situation arises primarily based on political considerations by the US EPA and the State Board with respect to regulating water quality impacts of agricultural activities. The agricultural lobby has been sufficiently powerful to stop the US EPA and state regulatory agencies from developing water quality criteria for a number of pesticides that are causing widespread aquatic life toxicity in Delta tributaries as well as Delta waters.

Basically, CALFED should use the US EPA water quality criteria/state standards/objectives as a guideline for determining concentrations that could be significant. However, through site-specific investigations within Delta waters and/or its tributaries, it would be possible to refine the target values to focus on specific situations of concern in the Delta and its tributaries as they may impact Delta resources.

On page 3, "Deletion of Carbofuran, Chlorpyrifos, Diazinon," with respect to Stephen Murrill's comments, the minutes state,

"Murrill indicated that if CALFED sets target levels, those levels should come from the proper authorities such as DPR and the SWRCB. It was pointed out that CALFED does not have the authority to set or enforce regulations. CALFED uses existing standards and criteria to the extent possible in the establishment of target ranges for parameters of concern."

Again, there was no mention in the minutes of the discussion that took place around the validity of this approach. As discussed above, the existing criteria and standards are not based on Delta situations for freshwater; they are largely based on Lake Superior situations. CALFED is not establishing regulatory limits. It has an obligation to use the public funds wisely to address real water quality problems in "fixing" the Delta. This means that it must, as part of implementing programs for the control of constituents, understand the relationship between the concentrations of constituents of concern in the Delta and their impact on the beneficial uses of the Delta and its resources. For CALFED to set a target value somewhat above the US EPA water quality worst-case criterion does not mean that the regional boards, State Board or others would in any way change how they must approach regulating that constituent.

Page 4, under "Comments made" with respect to nutrients, third bulleted item, states "Both nitrogen and phosphorus should be measured as indicators of raw sewage." I did not hear that statement made at the meeting. If it was made, it is inappropriate. They are not indicators of raw sewage under any Delta or tributary situations, except possibly within raw sewage discharges at the

time of discharge. Those familiar with the topic would never use nitrogen and phosphorus as a raw sewage indicator.

Page 5, underlined section, states "...nitrogen, and nitrite..." The term "nitrogen" is inappropriate. Since nitrite is a nitrogen compound, do they mean nitrogen gas? No. What is meant by nitrogen? The same problem occurs in the next section, "PAT Recommendations."

Please contact me if you have any questions about these comments.

Sincerely yours,

G. Fred Lee

G. Fred Lee, PhD, DEE

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J. Heath
L. Winternitz

GFL:oh