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April 28, 2012

Joe Grindstaff, Executive Officer  
Delta Stewardship Council

I attended the March 28, 2012 BDCP meeting via conference call and was concerned by a number of the statements and claims made with regard to the low-DO problems in the SJR DWSC. At the meeting, Dr. Chris Earle of ICF International, a BDCP consultant, briefly summarized Conservation Measures as presented in Chapter 3 of the current BDCP. Among the topics discussed were the cause of the low-DO conditions in SJR Deep Water Ship Channel (DWSC) and the current control of the low-DO conditions in the SJR DWSC. Based on my experience in leading an investigation of that topic, I found that a number of statements made concerning the current status of controlling the low-DO problem in the SJR DWSC and the role of the Port of Stockton in causing the low-DO problem in the DWSC were inaccurate and/or misleading. Please find attached comments that I provided to the BDCP on technical concerns I had from that meeting

[Lee, G. F., "Comments on Chris Earle's Brief Summary of Conservation Measures as presented in Chapter 3 of the BDCP," Comments to Karla Nemeth, CA Natural Resources Agency, G. Fred Lee & Associates, El Macero, CA, March 28 (2012). [http://www.gfredlee.com/SJR-Delta/BDCP\\_ConservationMeasures\\_Com.pdf](http://www.gfredlee.com/SJR-Delta/BDCP_ConservationMeasures_Com.pdf)]; these are also summarized below.

I have been involved in various aspects of Delta water quality evaluation and management since 1989, including serving as the PI for the CALFED-supported \$2-million project studying the low-DO problem in the DWSC. I have developed about 100 professional papers/reports on these issues, most of which are available on my website ([www.gfredlee.com](http://www.gfredlee.com)) in the Watershed Studies section, San Joaquin River Watershed Program–Delta subsection. A summary of my Delta water quality work and findings is available as:

Lee, G. F., and Jones-Lee, A., "Experience in Reviewing Delta Water Quality Issues," G. Fred Lee & Associates, El Macero, CA, April 3 (2011). <http://www.gfredlee.com/SJR-Delta/GFLAJL-Delta-EXP-REV.pdf>

In his discussion of the control of the low DO in the SJR DWSC, Dr. Earle stated that the low-DO problem in the SJR DWSC was being controlled by an existing aeration facility; that statement is not accurate. From my involvement in the review of the SJR DWSC low-DO situation over the past two decades, it is clear that the existing aeration facility alone will not control the low-DO problem. First, attempts to examine, define, and correct the low-DO problem in the SJR DWSC generally overlook or sidestep one of the primary reasons for the low-DO problem in the DWSC, namely the development/existence of the SJR DWSC that enables deeper draft ships to reach the Port of Stockton. The low-DO issue in the SJR DWSC is

directly due to the existence of the DWSC. Second, there are other important factors contributing to the low-DO problem that remain to be evaluated, including the impact of residual oxygen demand that causes violations of the DO water quality objective. Addressing the residual oxygen demand could require agricultural interests in the Grassland area to treat their tail water discharges to control nutrients that support the growth of algae whose decomposition contributes to the oxygen demand in the DWSC. Third, there is a major issue of funding of the operation of the experimental aeration facility that was constructed by DWR. Christine Joab, who is responsible for the SJR DWSC low-DO problem program in the CVRWQCB, indicated that the BDCP contractor's (Earle) statement that the low-DO problem in the SJR DWSC has been solved, is not correct.

Dr. Earle also stated that, as a Conservation Measure, the water quality impacts of urban stormwater runoff on Delta water quality have been evaluated, and that those problems can be controlled by treatment of the urban stormwater runoff. That position was supported at the April 26, 2012 DSC meeting at which the DSC staff advocated for the possible addition of policy in the Delta Plan to require special consideration to regulating stormwater runoff to protect water quality in Delta ecosystems. Such conclusions and planning for stormwater runoff control to reduce the low-DO problem are premature at best; at this time the role of stormwater runoff in influencing Delta Water quality is not sufficiently well-defined, and stormwater monitoring and control practices are not sufficiently focused or reliable for addressing this issue in a meaningful or cost-effective manner.

I have been involved in urban stormwater runoff water quality issues nationally since the 1960's. This experience has included extensive research in the evaluation, management, and regulation of impacts of urban and rural stormwater runoff on receiving water quality; I have published extensively on these issues including matters of water quality criteria and standards for stormwater runoff and the costs of treating urban stormwater runoff to meet water quality criteria/objectives. Many of my papers and reports on these issues are available on my website (Surface Water Quality Stormwater Runoff Impacts at [www.gfredlee.com/pswqual2.htm#runoff](http://www.gfredlee.com/pswqual2.htm#runoff)). For 13 years I self-published a Stormwater Runoff Water Quality Newsletter, that was distributed at no cost via email to more than 8,000 subscribers; issues of that newsletter are available for download from our website (<http://www.gfredlee.com/newsindex.htm>). The fact is that the real, significant water quality impacts of urban stormwater runoff on water quality in the Delta and its tributaries have not yet been properly evaluated, and there has been no reliable evaluation of the necessary and effective treatment and associated costs to control those problems.

I have discussed in detail in my publications and comments numerous technical deficiencies in how stormwater runoff-associated pollutants are being regulated, as well as how to enhance the technical reliability of their evaluation and management for the protection of receiving water quality. I can state with confidence that the DSC staff's proposed approach for additional regulation of stormwater runoff-associated potential pollutants does not reflect a sound understanding of water quality issues related to stormwater runoff or how to control real, significant water quality impacts; it is not technically valid. Your initial comments on the staff's recommended approach were correct and in accord with the technically valid approaches that should be adopted for evaluating the real, significant water quality impacts of chemicals in urban

and agricultural runoff, and then for developing site-specific control programs for managing those impacts. These types of approaches and the types of studies that are needed to make this type of evaluation are discussed in our writings. Further, we have discussed that the cost of treating urban stormwater runoff to meet water quality standards/objective can readily be on the order of dollars per person per day for the populations served by an urban stormwater runoff collection system. Such high costs are due to the very large volumes of stormwater that would, at times, have to be collected and treated. This situation is well-understood by the US EPA and many stormwater runoff regulatory agencies; it is a key reason that those agencies have not embraced the treatment of stormwater runoff to control the concentrations of heavy metals, etc. in urban stormwater runoff to meet existing water quality criteria/standards.

As discussed in the following review, we have extensive experience in developing water quality criteria/standards.

G. Fred Lee and Anne Jones-Lee Expertise and Experience in Water Quality Standards and NPDES Permits Development and Implementation into NPDES Permitted Discharges <http://www.gfredlee.com/exp/wqexp.htm>

One of the primary problems with trying to regulate urban stormwater runoff-associated potential pollutant such as heavy metals that exceed current US EPA water quality criteria/standards is that the approach used to develop those criteria and state standards based on them did not account for the nature and behavior of those potential pollutants. Those criteria/standards do not address the application of chronic exposure-based criteria to stormwater runoff, which is characterized by largely unavailable forms of many constituents that enter receiving water in periodic short-term pulses. Several years ago the US EPA acknowledged this situation but has not yet had funding directed to developing appropriate water quality criteria for the cost-effective regulation of urban, or for that matter, agricultural, stormwater runoff.

DSC should require that a directed action proponents provide adequate reliable information upon which to evaluate the potential impacts of stormwater runoff-associated chemicals on the water quality/aquatic resources of the Delta waters in the region where the proposed stormwater would be discharged. That information should include the results of appropriately designed and executed site-specific studies to substantiate their determinations, and the addressing of specific stormwater management approaches to address the potential impacts.

During the DSC member discussion of these issues questioned whether the CVRWQCB approach to regulating urban and agricultural stormwater runoff water quality impacts is adequate to evaluate the real significant water quality impacts of the potential pollutants in this runoff. As discussed in our writings on our website, the CVRWQCB's approach to regulating impacts of urban and agricultural stormwater runoff on water quality is a compromise, or "balance," between developing a limited-scope monitoring program for runoff characteristics to just do something at an acceptable cost, and conducting an appropriate, comprehensive water quality monitoring and impact evaluation program at a much higher cost. The latter has been judged to be sufficiently expensive to be unaffordable to many discharges. We have discussed these issues in the following report:

Lee, G. F., and Jones-Lee, A., "Comments on 'Draft Program Environmental Impact Report for a Waste Discharge Regulatory Program for Irrigated Lands within the Central

Valley Region," Submitted to Irrigated Lands Regulatory Program (ILRP), Sacramento, CA, September 25 (2010). <http://www.gfredlee.com/SurfaceWQ/ILRPcomments.pdf>

This type of “compromise” or “balance” is also found in the approach currently being used by the CVRWQCB to regulate runoff/discharges from dairies in the Central Valley. We recently completed a comprehensive review, cited below, of the current CVRWQCB regulatory program to attempt to control pollution of surface waters in the SJR watershed and Delta from runoff from areas where dairy wastes are managed by land application.

Jones-Lee, A., and Lee, G. F., “Impact of Dairy Wastes on San Joaquin River and Delta Water Quality Issues,” Report to As You Sow, San Francisco, CA, Report of G. Fred Lee & Associates, El Macero, CA, January 24, (2012).

[http://www.gfredlee.com/SJR-Delta/Dairy\\_Waste\\_Impact\\_Issues.pdf](http://www.gfredlee.com/SJR-Delta/Dairy_Waste_Impact_Issues.pdf)

As discussed in that report, the CVRWQCB acknowledges that the recently adopted updated regulatory program to control dairy waste water quality impacts is designed to be a “balanced” approach to increase regulatory requirements without raising the cost of dairy waste management sufficiently to force smaller dairies out of business. Based on my two decades of closely following the SWRCB and CVRWQCB approach to developing more protective water pollution control of surface and groundwaters, “balanced” approaches still prevail in addressing major improvements in water quality protection in the Central Valley and Delta.

I request that you bring these comments to the attention of the DSC members and let them know that if they have questions or comments on these issues, they can contact me for further discussion. Also, please post these comments with the DSC comments on the Delta Plan.

Fred

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Comments on  
Chris Earle's Brief Summary of Conservation Measures  
as presented in Chapter 3 of the BDCP

Submitted by  
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March 28, 2012

Karla Nemeth, CA Natural Resources Agency,  
Contact person for BDCP

This afternoon Dr. Chris Earle of ICF International presented a brief summary of Conservation Measures as presented in Chapter 3 (Conservation Strategy) of the Bay Delta Conservation Plan (BDCP).

Are the slides that he used in his presentation available? If so, please send me a set. Also please point out where I can find a listing/discussion of the Conservation Measures that Earle mentioned in Chapter 3.

One of the conservation measures Dr. Earle mentioned was devoted to the control of the low DO in the SJR Deep Water Ship Channel (DWSC). Dr. Earle stated that the low-DO problem in the SJR DWSC was being controlled by an existing aeration facility; that statement was not inaccurate. I have been involved in the review of the SJR DWSC low-DO situation since the late 1900's. As discussed in papers/reports on my website ([www.gfredlee.com](http://www.gfredlee.com) in the Watershed studies section San Joaquin River Watershed Program - Delta subsection) the existing aeration facility alone will not control the low-DO problem. There are other important contributing issues that remain to be evaluated, including the impact of residual oxygen demand that causes violations of the DO water quality objective. Addressing the residual oxygen demand could require agricultural interests in the Grassland area to treat its tail water discharges to control nutrients that support the growth of algae, whose decomposition contributes to the oxygen demand in the DWSC. Also there is a major issue of funding of the operation of the experimental aeration facility that was constructed by DWR. I checked with Christine Joab of the CVRWQCB, who is responsible for the SJR DWSC low-DO problem program today; she indicated that the BDCP contractor's (Earle) statement that the low-DO problem in the SJR DWSC has been solved, is not correct.

Dr. Earle also stated that, as a Conservation Measure, the water quality impacts of urban stormwater runoff on Delta water quality have been evaluated, and that those problems can be controlled by treatment of the urban stormwater runoff. I have been involved in Delta water quality issue since 1989 and have developed about 100 paper/reports on these issues. A summary of my Delta water quality work and findings is available as,

Lee, G. F., and Jones-Lee, A., "Experience in Reviewing Delta Water Quality Issues," G. Fred Lee & Associates, El Macero, CA, April 3 (2011).<http://www.gfredlee.com/SJR-Delta/GFLAJL-Delta-EXP-REV.pdf>

I have also been involved in urban stormwater runoff water quality issues nationally since the 1960's and in the Delta since 1989; I have published extensively on the costs of treating urban stormwater runoff to meet water quality criteria/objectives. A section of my website (Surface Water Quality Stormwater Runoff Impacts at <http://gfredlee.com/pswqual2.htm#runoff>) is devoted to my work on those issues. The real, significant water quality impacts of urban stormwater runoff on the Delta and its tributaries have not yet been properly evaluated, and there has been no reliable evaluation of the necessary and effective treatment and associated costs to control those problems.

I would appreciate specific references to materials that BDCP has developed that address the solution of the low-DO problem in the SJR DWSC, as well as the evaluation and management of the water quality problems caused by urban stormwater runoff in the Delta and its tributaries.

Please pass these comments on to Dr. Meral, and indicate that if he has questions about these issues or other Delta water quality problems he should contact me.

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