Comments on Michael Bryan Testimony (Exhibit DWR-81) - Hearing in the Matter of CA DWR and USBR Request for a Change in Point of Diversion for California Water Fix – As Pertaining to Testimony of G. Fred Lee

G. Fred Lee, PhD, F.ASCE,
G. Fred Lee & Associates
El Macero, CA 95618
www.gfredlee.com

April 18, 2017

M. Bryan described on page 1 of his testimony his qualifications to provide his comments, including:

> *"I received a Bachelor of Science degree in Fisheries Biology from the University of Wisconsin-Stevens Point in 1986, a Master of Science degree in Fisheries Biology from Iowa State University in 1989, and a Doctor of Philosophy degree in Toxicology and Fisheries Biology from Iowa State University in 1993. I have 23 years of experience in assessing impacts of water resource projects on water quality and aquatic biological resources in California."*
>
> "*For the California WaterFix (CWF), I led a team of scientists and engineers at RBI in the preparation of the Water Quality Chapter of the Bay Delta Conservation Plan (BDCP) Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS), BDCP/CWF Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS), and Final EIR/EIS."*

The products of M. Bryan's team's writings in Water Quality Chapter (Chapter 8) of the BDCP and the draft EIR/EIS, Recirculated (RDEIR/SDEIS), and Final EIR/EIS do not demonstrate a strong technical background and comprehensive expertise in the many of the key issues discussed by him. As discussed in comments submitted concerning the technical reliability and adequacy of Chapter 8 (Lee and Jones, 2014) we and others who have reviewed those writings including the Delta Independent Science Board have found that Bryan and his team have failed to adequately present and discuss some of the key issues governing Delta water quality. Examples of technical deficiencies in his/their assessment of Delta water quality issues pertaining to WaterFix are presented below.

Beginning on page 2 of his testimony M. Bryan discussed his opinion that WaterFix diversion of Sacramento River would not impact harmful algal blooms (HAB). He discussed his opinions concerning the effects of the diversion of Sacramento River on such factors as river flow velocity, river temperature, and water residence time, namely that the impacts would be too small to adversely affect water quality. His discussion of these issues, however, neglects to address the impact of proposed WaterFix diversions of Sacramento River water on Central Delta water quality. As discussed in our comments referenced above, DWR and its consultants failed to evaluate the impacts of WaterFix tunnel diversions on Central Delta water quality.

As summarized in my WaterFix testimony (Lee, 2016), over the past five decades I have been led and otherwise been involved in a wide variety of water quality studies in many areas of the US and in many other countries to evaluate factors impacting the occurrence of excessive growths of algae, especially bluegreen bacteria/algae. I have also evaluated the current understanding of the factors influencing the occurrence of algae of various types in the various parts of the Delta. It is my assessment that the factors governing the algae and especially bluegreen bacteria/algae in the Delta are not well understood or quantifiable. Of particular importance is the combined impact of the numerous, though not well-defined, factors governing algal growth in the Delta. This is especially true for the Central Delta.

M Bryan makes attempts to broadly discredit my testimony in his "opinions" without addressing the substance of my testimony. Further, his inappropriately including *"and Fred Lee [OCSP-6-Revised"* in various footnotes suggests that he is trying to discredit me for testimony on issues that I did not address in my testimony.

On page 20 Bryan stated,

> *"Testimony by Mr. G. Fred Lee on behalf of the California Sportfishing Protection Alliance and Ms. Barbara Barrigan-Parrilla on behalf of Restore the Delta also raised concerns about the effects of the CWF at the City of Stockton drinking water diversion location.*[9]
>
> *Opinion #10*
>
> *The CWF would not alter water quality at the City of Stockton's WTP intake location in the San Joaquin River for identified constituents of concern in a manner that would cause adverse impacts to the municipal and industrial supply beneficial uses at this river location.*
>
> [9] *[STKN-010], [CSPA-6],[RTD-20],and [RTD-10-Rev2]."*
>
> *This opinion and following testimony is supported by analysis presented in my technical report, Report on the Effects of the California WaterFix on Water Quality at City Of Stockton's Water Treatment Plant Intake Location on the San Joaquin River [Exhibit DWR-652].*[10]
>
> *The constituent assessments for bromide, chloride, electrical conductivity (EC),nitrate, and organic carbon rely upon DSM2 modeling of operational scenarios for the NAA,4A-H3, 4A-H4, Boundary 1 and Boundary 2 as presented in DWR's case-in-chief.*
>
> *Electrical conductivity and organic carbon were directly modeled by DSM2. The mass-balance methodology for calculating concentrations for the other constituents assessed from the DSM2 finger printing or flow-fraction modeling output is the same methodology defined in the CWFEIR/EIS*[11].
>
> *The following provides assessment conclusions based on the analysis presented in my supporting technical report.*

<u>Bromide</u>: Analysis for bromide is provided in Section 3.3.1 of Exhibit DWR-652. The modeling results indicate that the CWF is anticipated to result in bromide conditions at the City's diversion location that would be very similar to that which would occur under the NAA, and more often lower on an annual average basis. The increases in bromide concentrations that could occur at this site due to the CWF, relative to the NAA, would be of a magnitude that would not cause substantial degradation and would result in only small increases (estimated at 4% or less) in TTHM production in the City's treated drinking water supply.

[10]The concerns raised by the City of Stockton regarding water quality at its municipal intake were adequately addressed in the EIR/EIS. In order to demonstrate that their assertions that the EIR/EIS must model each and every point in the Delta in order to be complete, an additional analysis was performed and its results are within the expected results based upon the analysis contained in the EIR/EIS.

[11]Section 8.4.1.3, Plan Area, in Chapter 8, Water Quality, of the Bay Delta Conservation Plan Draft EIR/EIS; Section 8.3.1.3,Plan Area, in Chapter 8,Water Quality, of the Bay Delta Conservation Plan/California WaterFix Partially Recirculated Draft EIR/Supplemental Draft EIS and Final EIR/EIS."

Bryan also presented a discussion of his perspective of impacts of the WaterFix tunnel diversions on the concentrations of selenium and mercury, turbidity, Microcystis, temperature, other toxins, pesticides, organic carbon, nitrate, EC, and chloride. His approach for assessing the impact of altered concentrations of the various parameters was comparing the concentration of the chemical to a drinking water MCL. That approach for trying to assess impact is not consistent with having a reliable understanding of drinking water quality issues. Degradation of drinking water quality can occur without exceedance of an MCL based on toxic impacts. I have been involved in domestic drinking water quality since 1955. My Masters and PhD thesis/dissertations, course work at the University of North Carolina School of Public Health and in Environmental Engineering and Public Health at Harvard University, as well as much of my subsequent professional experience over the next 5 decades were devoted to drinking water quality; I have served on several national and international committees devoted this issue and led and participated in several research projects focused on drinking water quality. As discussed in my testimony I also have extensive experience in developing and reviewing water quality standards, MCLs. The approach used by Bryan to assess the impact of reducing the amount of high-quality Sacramento River that enters the San Joaquin River channel where the City of Stockton water supply intake is located is not technically valid. My testimony on WaterFix diversions provided a summary of key impacts of the proposed WaterFix diversions on the San Joaquin River channel flows and composition. There is no doubt that the quality of the City of Stockton water supply will be degraded by the operation of the WaterFix tunnel diversions.

Overall, Bryan and his associates have failed to properly evaluate the water quality impacts of diverting large amounts of Sacramento River water in the Tunnels around the Delta on water quality. He did not address, much less reliably refute, the substance of my testimony.

References:

Lee, G. F., and Jones-Lee, A., "Comments on Bay Delta Conservation Plan (BDCP) Draft EIR/EIS Chapter 8 – Water Quality, Chapter 25 – Public Health, July 25, 2014," Comments submitted as part of comments provided by California Sportfishing Protection Alliance, Stockton, CA to Ryan Wulff, NOAA National Marine Fisheries Service, Sacramento, CA, July 28 (2014).
http://www.gfredlee.com/SJR-Delta/Comments_BDCP_draftEIR_EIS_July2014.pdf

Lee, G. F., Deficiencies in DWR/USBR Assessment of Water Quality Impacts of Proposed Delta WaterFix Tunnel Project, Revised Testimony before California State Water Resources Control Board Hearing on DWR/USBR Request for Change in Point of Diversion for California WaterFix, Submitted on behalf of CA Sportfishing Protection Alliance, October 16 (2016).
http://www.gfredlee.com/SJR-Delta/WaterFix_Testimony_10_2016.pdf

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

"Qualifications of Dr. G. Fred Lee in Evaluation and Management of Water Supply Water Quality."
http://www.gfredlee.com/exp/wswq_exp.htm