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California State Water Resources Control Board

DATE: August 19, 2024

SUBJECT: REQUEST FOR EXTERNAL SCIENTIFIC PEER REVIEW OF THE SCIENTIFIC BASIS OF PROPOSED REVISIONS TO THE TOTAL MAXIMUM DAILY LOAD OF METHYLMERCURY TO THE SACRAMENTO – SAN JOAQUIN DELTA ESTUARY

We request external scientific peer review regarding the scientific basis of proposed revisions to the total maximum daily load (TMDL) for methylmercury in the Sacramento – San Joaquin Delta Estuary (Delta) and associated implementation plan, collectively referred to as the Delta Mercury Control Program (DMCP). Board staff have written the *Delta Mercury Control Program Phase 1 Review of the Sacramento – San Joaquin Delta Estuary Total Maximum Daily Load for Methylmercury Staff Report for Scientific Peer Review* (DMCP Review Staff Report for SPR) which contains the detailed analysis of the Phase 1 Review.

Central Valley Water Board staff (Board staff) requests that you initiate the process to identify external scientific peer reviewers for proposed revisions to the TMDL for methylmercury in the Delta, per the requirements of California Health and Safety Code section 57004.

Purpose of Review

In 2010, the Central Valley Water Board adopted the Delta Methylmercury TMDL and DMCP as a phased approach to manage methylmercury in the Delta. The TMDL was subsequently approved by USEPA on October 20, 2011. Scientific peer review of the *Sacramento – San Joaquin Delta Estuary TMDL for Methylmercury Staff Report, April 2010* (2010 TMDL Staff Report) occurred in 2006.

Phase 1 of the DMCP required dischargers to collect methylmercury data and conduct control studies to investigate the reduction and control of methylmercury. Based on review of new data and the results of the control studies, Board staff were required to consider revising DMCP objectives, allocations, implementation strategies and schedules, and the final compliance date.

Board staff's review of Phase 1 of the DMCP (referred to as the "DMCP Review"), specifically the scientific portions of the proposed rule as required by the CA Health and Safety Code section 57004, is provided in the DMCP Review Staff Report for SPR. The scientific aspects include reevaluations of water quality objectives, methylmercury sources, and methylmercury allocations during Phase 2, which will be relied upon to drive compliance and implementation policy changes regarding control of methylmercury. The Central Valley Water Board will consider adopting these changes as amendments to the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan). Therefore, Board staff requests scientific peer review of the methods, calculations, and assumptions used to complete the scientific portions of the DMCP Review. Board staff is continuing to review and consider modifications to implementation provisions and schedules and the final compliance date.

When All Supporting Documents and References will be Available at the FTP Site

All materials for the scientific peer review, including supporting documents for reference, will be available within 10 days of the date of this letter.

Requested Review Period

We request that scientific peer review be completed within 60 days.

Necessary Areas of Expertise for Reviewers

The DMCP Review Staff Report for SPR is highly technical with data analyses, in-depth scientific evaluations, modeling, and statistics. All reviewers must be proficient in scientific and statistical data analysis (e.g., calculation of pollutant loads, development of water quality objectives, and summary statistics). To review the scientific conclusions outlined in Attachment 2: Scientific Assumptions, Findings, and Conclusions to Review, reviewers should have expertise in (1) methylmercury, (2) Delta estuary management strategies, and/or (3) statistical analysis and data visualization, as described below.

Methylmercury

Two reviewers with expertise in methylmercury pollution, fate, transport, and bioaccumulation. Reviewers need to have familiarity with (1) the relationship between mercury concentrations in fish and the ambient unfiltered methylmercury concentrations in water, (2) the mechanism of methylmercury bioaccumulation in fish, and (3) the fate and transport of total mercury, methylmercury, and the conversion between total mercury and methylmercury.

Corresponding conclusions in Attachment 2:

- Conclusion 1: Linkage Analysis and Black Bass Implementation Goal
- Conclusion 3: Source Analysis
- Conclusions 4.a.- 4.d.: Allocations

Delta Estuary Management Strategies

One reviewer with expertise in Delta ecosystem management including water quality and resources (e.g., flow dynamics and constituents of concern). Additional knowledge on how these factors may affect mercury methylation and control is preferable.

Corresponding conclusions in Attachment 2:

- Conclusion 1: Linkage Analysis and Black Bass Implementation Goal
- Conclusion 3: Source Analysis
- Conclusions 4.a.- 4.d.: Allocations
- Conclusion 5: Climatic Variability

Environmental Statistical Analysis and Data Visualization Using R

One reviewer with expertise in environmental statistical analysis techniques, and regression model evaluation.

Corresponding conclusions in Attachment 2:

- Conclusion 1: Linkage Analysis and Black Bass Implementation Goal
- Conclusion 2: Margin of Safety
- Conclusion 5: Climatic Variability

Contact Information

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Attachments

Attachment 1: Plain English Summary
Attachment 2: Scientific Assumptions, Findings, and Conclusions to Review
Attachment 3: Individuals who Participated in the Development of the Proposal
Attachment 4: References Cited

Attachment 1: Plain English Summary

The Central Valley Water Board identified the Delta as impaired for mercury in 1990 because elevated fish mercury levels posed a risk for human and wildlife consumers. In 2006, the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) identified Central Valley outflows through the Delta as one of the primary sources of total mercury to San Francisco Bay and assigned the Central Valley a load reduction of 110 kilograms per year.

In 2010, the Central Valley Water Board adopted the Delta Methylmercury TMDL and DMCP as a phased approach to manage methylmercury in the Delta. The DMCP is designed to protect human and wildlife health in the Delta and meet the Central Valley's mercury load allocation from the San Francisco Bay Water Board. The TMDL was subsequently approved by USEPA on October 20, 2011.

At the time of adoption, the Board recognized that additional information about methylmercury source control methods was needed to (1) determine how and if dischargers could attain load and waste load allocations and (2) evaluate potential benefits and adverse impacts to humans, wildlife, and the environment. Accordingly, the Board adopted the Delta Methylmercury TMDL and DMCP as a phased approach:

- Phase 1: Phase 1 of the DMCP required dischargers to collect methylmercury data and conduct control studies to investigate the reduction and control of methylmercury. These control studies were then reviewed by an independent scientific peer review panel.

- Phase 1 Review: Based on review of new data and the results of the control studies, Board staff is required to consider revising DMCP objectives, allocations, implementation provisions and schedules, and the final compliance date.

- Phase 2: Phase 2 requires dischargers to implement methylmercury control programs to meet allocations, continue total mercury reduction programs, and conduct compliance monitoring.

Board staff is currently conducting Phase 1 Review. The DMCP Review, specifically the scientific portions of the proposed rule as required by the CA Health and Safety Code section 57004, is provided in the DMCP Review Staff Report for SPR. As part of DMCP Review, Board staff is also continuing to review and consider modifications to implementation provisions and schedules and the final compliance date. These aspects of the DMCP Review, which will help inform proposed amendments to the Basin Plan, do not constitute scientific portions of the DMCP Review and thus are not included as part of this scientific peer review.

The TMDL geographic scope includes the area within the legal Delta boundary and the entire Yolo Bypass. The scope was divided into eight subareas (West Delta, Central Delta, Marsh Creek, San Joaquin River, Mokelumne/Cosumnes Rivers, Sacramento

River, Yolo Bypass – North, and Yolo Bypass – South) based on hydrologic

characteristics and mixing of source waters. Board staff propose including the Cache Creek Settling Basin within the geographic scope of the TMDL as part of the DMCP Review.

The 2010 TMDL Staff Report selected methylmercury (MeHg) in fish tissue as the numeric target for the Delta Methylmercury TMDL[1]. The numeric targets were developed based on fish consumption rates to protect human and wildlife health. For the DMCP Review, Board staff did not modify the numeric targets or water quality objectives listed in the 2010 TMDL Staff Report.

The 2010 TMDL Staff Report's linkage analysis determined that methylmercury concentrations in fish could be linked to methylmercury concentrations in ambient water. This empirical evidence assumes that ambient aqueous methylmercury concentrations are the primary factor in determining fish tissue methylmercury concentrations. For the DMCP Review, Board staff maintained this assumption and performed the linkage analysis using more recent and extensive data, and more robust methods. Both linkage analyses looked at multiple models and selected one. The selected model was used to develop an aqueous MeHg implementation goal that, when met, would result in a methylmercury concentration in fish that is safe for wildlife and humans to consume. After applying a margin of safety, the 2010 linkage model resulted in an aqueous MeHg implementation goal of 0.06 ng/L and the DMCP Review linkage model resulted in an aqueous MeHg implementation goal of 0.059 ng/L.

In the 2010 TMDL Staff Report, the ambient aqueous MeHg in all subareas except the Central Delta exceeded the aqueous MeHg implementation goal. In the DMCP Review, all subareas exceeded the aqueous MeHg implementation goal including the Central Delta. Therefore, the 2010 TMDL Staff Report and DMCP Review include a source analysis that identifies and quantifies sources of methylmercury.

As done in the 2010 TMDL Staff Report, the DMCP Review assigns methylmercury load allocations to methylmercury sources. Methylmercury allocations were assigned based on the reduction needed in each Delta TMDL subarea. To determine the reduction of methylmercury, the 2010 TMDL Staff Report compared the average methylmercury concentration in ambient water in each Delta TMDL subarea to the aqueous MeHg implementation goal of 0.06 ng/L. For the DMCP Review, Board staff compared the median methylmercury concentration in ambient water, calculated using more recent data, to the proposed aqueous methylmercury implementation goal of 0.059 ng/L.

[1] While the numeric targets are for methylmercury, mercury is typically analyzed as "total mercury" in fish because of the additional cost required for methylmercury analysis. Mercury exists almost entirely in the methylated form in small and TL4 fish. It is estimated that methylmercury accounts for 94.3% of the total mercury in fish. Therefore, the 2010 TMDL Staff Report assumed that all the mercury measured as total mercury in Delta fish was methylmercury.

Attachment 2: Scientific Assumptions, Findings, and Conclusions to Review

The statutory requirement for external scientific review (CA Health and Safety Code, section 57004) states that it is the peer reviewer's responsibility to determine whether the scientific portion of the proposed rule is based upon sound scientific knowledge, methods, and practices.

The assumptions, findings, and conclusions that constitute the scientific portions of this TMDL project are identified and listed below. We request that the scientific peer reviewers determine if the scientific portion of the proposed rule is based upon sound scientific knowledge, methods, and practices per statute for external scientific peer review (CA Health and Safety Code, section 57004).

The DMCP Review Staff Report for SPR incorporates additional monitoring and modeling conducted as part of Phase 1 of the DMCP. The DMCP Review Staff Report for SPR is a highly technical document that contains in-depth scientific evaluations, complex statistical analyses, and conclusions that are based on data from independently produced technical studies and reports. The Central Valley Water Board requests that reviewers assess the appropriateness of using these evaluations, analyses, and conclusions in the DMCP Review Staff Report for SPR.

The following conclusions of the DMCP Review Staff Report for SPR comprise the bulk of the scientific analysis and require focused peer review. Each conclusion contains a list that summarizes the facts and background to support the conclusion.

1. **Linkage Analysis and Black Bass Implementation Goal**

Conclusion 1: The DMCP Review's proposed linkage model was determined by applying appropriate quantitative data analysis methods for pairing black bass mercury data with aqueous methylmercury data, finding the central tendency of data, and selecting regression models.

- Board staff selected three black bass species (largemouth bass, smallmouth bass, and spotted bass) instead of only one species (largemouth bass), as done in the 2010 TMDL Staff Report.
- Board staff evaluated three year ranges of aqueous methylmercury and black bass mercury data: 2000-2019, 2012-2019, and 2016-2019.
- For each year range, Board staff determined whether the central tendency of data should be calculated either by pooling all years of data or grouping by year.
- Board staff evaluated whether the mean, geomean, weighted average, or median would be a better measure of central tendency.
- Board staff considered six regression models (simple linear, exponential, logarithmic, power, nonlinear least squares, and generalized additive models) to standardize black bass mercury concentrations.

- In total, 405 potential linkage models were generated.
- The model that provided the lowest standard error of regression (SER) was selected as the final linkage model to represent the relationship between aqueous methylmercury and black bass mercury concentrations.

Sections of the DMCP Review Staff Report for SPR that pertain to the Linkage Analysis and Black Bass Implementation Goal include:

- Section 4.2 Black Bass Evaluation
- Section 5 Linkage analysis
- Appendix B
- Appendix C

2. **Margin of Safety**

Conclusion 2: The DMCP Review's proposed margin of safety sets an aqueous methylmercury implementation goal by accounting for the uncertainty in the linkage analysis data and modeling methods used to find the protective aqueous methylmercury concentration.

- Resampling was used to randomly select, with specified criteria, 10,000 representative subsets of aqueous methylmercury and black bass mercury sampling data.
- Each subset determined predicted protective aqueous methylmercury concentration.
- The 10,000 generated protective aqueous methylmercury concentrations were used to construct a probability distribution.
- The fifth percentile value from the probability distribution, 0.059 ng/L, was set as the aqueous methylmercury implementation goal, which equates to a margin of safety of about 3.3%.
- The fifth percentile value represents a 95% chance that the true protective aqueous methylmercury concentration is greater than the proposed aqueous methylmercury implementation goal of 0.059 ng/L.

Sections of the DMCP Review Staff Report for SPR that pertain to the Margin of Safety include:

- Section 5.3 Margin of Safety

3. **Source Analysis**

Conclusion 3: The DMCP Review's proposed water balance and methylmercury mass balance reasonably quantify and account for all water and methylmercury source and loss types in the Delta.

- To be consistent with the final linkage model, sources and losses of the water balance and methylmercury mass balance were calculated using medians to estimate the central tendency of aqueous methylmercury concentration and flow volume data.
- The source analysis incorporated data from water years 2000 through 2019, a period that encompasses a mix of wet and dry conditions.
- The water balance was calculated using the same methods used in the 2010 TMDL Staff Report.
- Some water balance sources and losses were calculated using flow estimate methods (e.g., flow models or precipitation runoff) rather than flow measurements (e.g., flow gauges).
- Board staff corrected miscalculations and incorporated additional calculations to better estimate the water balance and mass balance.
- Due to inclusion of multiple hydrologic models, Board staff recognize the potential that evaporation and precipitation may be overestimated in the water balance.

Sections of the DMCP Review Staff Report for SPR that pertain to the Source Analysis include:

- Section 6 Source Analysis

4. **Allocations**

The following conclusions should be considered:

Conclusion 4.a.: DMCP Review's proposed methylmercury load allocations and waste load allocations are achievable considering current technology, feasibility of controlling the sources, and recommended methylmercury allocation compliance calculations.

Conclusion 4.b.: Achieving load allocations and waste load allocations for Delta regulated entities (e.g., municipal separate storm sewers (MS4s), public wastewater treatment plants (WWTPs), irrigated agriculture) will result in measurable and statistically meaningful reductions in fish tissue mercury concentrations. This conclusion should be considered apart from whether other loads are achieved.

Conclusion 4.c.: Achieving load allocations and waste load allocations for Delta regulated entities (e.g., MS4s, WWTPs, irrigated agriculture) will result in a measurable reduction in Delta aqueous methylmercury concentrations. This conclusion should be considered apart from whether other loads are achieved.

Conclusion 4.d.: Measurable reductions of mercury in fish tissue will occur as all sources meet the proposed allocations, eventually attaining the proposed water quality objectives to protect human and wildlife health for consumption of trophic

level 3 and 4 fish.

- Methylmercury allocations were determined using the same analysis methodology in the 2010 TMDL Staff Report.

- Methylmercury allocations were calculated using the specific assimilative capacity for each Delta TMDL subarea based on available data from WYs 2000-2019. The assimilative capacity of each Delta TMDL subarea is set as the ambient aqueous methylmercury concentration to meet the proposed aqueous methylmercury implementation goal of 0.059 ng/L in unfiltered water and encompasses a margin of safety of 3.3%.

- Methylmercury allocations were calculated using gross methylmercury loading of sources to and within Delta TMDL subareas. For sources that are net sinks of methylmercury, Board staff assigned the source a 100% allocation.

- Methylmercury allocations are ultimately driven by the proposed water quality objectives, which were previously scientifically peer reviewed. The water quality objectives were reevaluated but not changed.

- Methylmercury allocations are based on estimating the median population growth to be 25% from 2020 through 2060.

- Methylmercury allocations incorporated an unassigned allocation for future flows from NPDES WWTPs, and MS4s in the Delta MeHg TMDL Boundary that were not evaluated in the DMCP Review.

- Compliance with tributary load allocations will be addressed in upstream mercury control programs.

The sections of the DMCP Review Staff Report for SPR that pertain to Allocations include:

- Section 8 Methylmercury Allocations, Total Mercury Limits, & Margin of Safety

- Appendix E Characterization and Control Study Summaries
    - Including the *Independent Scientific Review of the Delta Mercury Control Program Phase 1* reports coordinated through the Delta Science Program

5. **Climatic Variability**

Conclusion 5: The DMCP Review's proposed methylmercury source analysis, allocations, and compliance calculation methods reasonably account for climatic variability.

- Climate change is expected to create variable extremes of flow events and varying effects of mercury loading and methylmercury concentrations in the Delta.

- Climate change will likely affect precipitation rates, resulting in longer and drier drought periods and more intense storm systems that result in less runoff during drought periods and more runoff during flood years.
- Longer and drier drought periods and more intense storm systems expected with climate change should be similar to the recent dry periods observed in WYs 2001-2004, 2007-2010, and 2012-2016, followed by an extreme wet year, observed in 2005, 2011 and 2017.
- The methylmercury source analysis and allocation calculations incorporate data from WYs 2000-2019 to account for normal and critical conditions.
- Medians were used to determine the central tendency of methylmercury loads and exports and the amount of methylmercury reduction needed in each subarea.
- The median is a robust statistical measure of central tendency because up to 50% of the observations can be changed without affecting the median value, whereas the arithmetic mean is heavily influenced by skewed datasets and outliers.
- Proposed compliance for all methylmercury allocations is based on a rolling five-year median.
- The median is proposed to determine compliance with all methylmercury allocations because it is (1) the same statistic used to calculate allocations, (2) less influenced by the effects of extreme weather events, as compared to the arithmetic mean.

The sections of the DMCP Review Staff Report for SPR that pertain to Climatic Variability include:

- Section 6.1 Water Balance
- Section 6.4 Methylmercury Mass Balance
- Section 8.1 Methylmercury Allocations
- Section 8.4 Seasonal & Inter-annual Variability

Attachment 3: Individuals who have Participated in the Development of the Proposal

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD
Patrick Pulupa, Executive Officer
Adam Laputz, Assistant Executive Officer
Meredith Howard, Environmental Program Manager
Lauren Leles, Senior Environmental Scientist
Jennifer Fuller, Senior Environmental Scientist
Robin Merod, Water Resource Control Engineer (prior employee)
Jordan Robbins, Environmental Scientist (prior employee)
Leah Jones, Environmental Scientist (prior employee)

2010 TMDL STAFF REPORT DEVELOPMENT:
Pamela Creedon, Executive Officer (Retired)
Ken Landau, Assistant Executive Officer (Retired)
Jerry Bruns, Environmental Program Manager (Retired)
Patrick Morris, Senior Water Resource Control Engineer (Retired)
Janis Cooke, Environmental Scientist
Chris Foe, Environmental Scientist (Retired)
Michelle Wood, Environmental Scientist (prior employee)
Stephen Louie, Environmental Scientist (prior employee)

STATE WATER RESOURCES CONTROL BOARD, OFFICE OF CHIEF COUNSEL
Bayley Toft-Dupuy, Staff Counsel
Lori Okun, Staff Counsel (Retired)

SCIENTIFIC PEER REVIEW OF 2010 TMDL STAFF REPORT
Professor David Sedlak, University of California
Alexander J. Horne, Professor Emeritus, University of California

COMMENTERS ON 2010 TMDL STAFF REPORT
Alexis Straus, U.S. Environmental Protection Agency, Region 9
Andria Ventura, Clean Water Action
Angel Luevano, Todos Unidos
Art O'Brien, City of Roseville Wastewater Treatment
Aubrey White, UC Davis Graduate Student
Aviance Robinson, All Positives Possible
Bob Schneider, Tuleyome
Bud Hoekstra
Chris Scheuring, Farm Bureau
Christine Cordero, Center for Environmental Health
Chunky Harrigan, Whole Education
Corrina Gould, Chochenyo Ohlone for Indian People Organizing for Change
Dale K. Hoffman-Floerke, California Department of Water Resources
David Tompkins, City of Vacaville

Debbie Davis, Environmental Justice Coalition for Water
Debbie Webster, Central Valley Clean Water Association
Dipti Bhatnagar, Environmental Justice Coalition for Water
Duane Chamberlain, Yolo County Board of Supervisors
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Erick Soderlund, Department of Water Resources
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Gene Mullenmeister
Greg Meyer, City of Woodland
Greg Yarris, California Waterfowl Association
Hasheem Bason, Parents 4 A Healthy Community
Henry Clark, Dr., West County Toxics Coalition
Ian Wren, Baykeeper
Irenia Quitiquit, Scotts Valley Band of Pomo Indians
Jacqueline McCall, Central Valley Clean Water Association
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John Herrick, South Delta Water Agency
Jovita Pajarillo, U.S. Environmental Protection Agency, Region 9
Kari Fisher, California Farm Bureau Federation
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LaDonna Williams, People for Children's Health and Environmental Justice
Laura Leonelli, Southeast Asian Assistance Center
Leah Wills, Plumas County Flood Control and Water Conservation District
Leo Winternitz, The Nature Conservancy
Linda Fiack, Delta Protection Commission
Lonnie Mason, First Generation
Marty Hanneman, City of Sacramento
Mary K. Snyder, Sacramento Regional County Sanitation District
Meyo Marrufo, Robinson Rancheria of Pomo Indians
Michael Hoover, United States Fish and Wildlife Service
Michael L. Peterson, County of Sacramento
Michelle H. Denning, U.S. Department of Interior Bureau of Reclamation, Mid-Pacific Regional Office
Mike DeSpain, Mechoopda Tribe
Paul Buttner, California Rice Commission
Paul D. Thayer, California State Lands Commission
R. Mitch Avalon, Contra Costa County Public Works Department
Rudolph Rosen, Ducks Unlimited
Sarah Ryan, Big Valley Rancheria Band of Pomo Indians
Saroeum Yim, United Cambodian Families
Sejal Choksi, Baykeeper
Sherill Huun, City of Sacramento
Sherri Norris, California Indian Environmental Alliance
Susan Tatayon, The Nature Conservancy

Terrie Mitchell, Sacramento Regional County Sanitation District
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Tim O'Halloran, Yolo County Flood Control and Water Conservation District
Tony Pirondini, City of Vacaville
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OTHERS INVOLVED IN THE DMCP CONTROL AND CHARACTERIZATION STUDIES

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Andrea Buckley, California Central Valley Flood Protection Board
Anna Kogler, West Yost Associates
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Brian Branfireun, University of Western Ontario
Brian Laurenson, Larry Walker Associates
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Charles Hardy, West Yost Associates
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Christopher Knightes, U.S. Environmental Protection Agency
Christopher Martin, Department of Water Resources
Cindy Gilmour, Smithsonian Environmental Research Center
Collin Eagles-Smith, U.S. Geological Survey
Colonel James J. Handura, U. S. Army Corps of Engineers
Cory Koger, U. S. Army Corps of Engineers
Curtis Pollman, Aqua Lux Lucis, Inc.
Cynthia Herzog, California State Lands Commission
Dalia Fadl, City of Sacramento
Dan Sherry, Sacramento City Combined Wastewater Collection and Treatment System
Daniel Hack, Ross Island Sand and Gravel Co.
Dave Nugen, City of Folsom
Dean Messer, Department of Water Resources
Derek Murray, Tetra Tech, Inc.
Gary Wortham, Tetra Tech, Inc.
Harry McQuillen, U.S. Geological Survey
Hope Taylor, Sacramento Regional County Sanitation District
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Jacob A. Fleck, U.S. Geological Survey
Jaime Rodriguez, Deuel Vocational Institution
Jason Cashman, Port of Stockton
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Matt Weber, GHD Group
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Michael Peterson, County of Sacramento
Paul Bedore, Robertson-Bryan, Inc.
Petra Lee, California Central Valley Water Quality Control Board
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Robert Burton, Deuel Vocational Institution
Robert Mason, University of Connecticut
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Sujoy Roy, Tetra Tech, Inc.
Teri Yessen, California Department of Corrections and Rehabilitation
Tom Grovhoug, Larry Walker Associates
Valentina Cabrera-Stagno, U.S. Environmental Protection Agency, Region 9
William Forrest, City of Galt
Yumiko Henneberry, Delta Stewardship Council

Attachment 4: References Cited

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