

CITY AND COUNTY OF SAN FRANCISCO



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Via Electronic and U.S. Mail

Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814
LSJR-SD-Comments@waterboards.ca.gov

RE: *San Francisco's Comments to Plan Amendment and Final SED.*

Dear Ms. Townsend,

This office represents the San Francisco Public Utilities Commission ("SFPUC"), operator of the Hetch Hetchy Regional Water System ("RWS"), which provides water to over 2.6 million people throughout the Bay Area. On behalf of the SFPUC and the City and County of San Francisco ("San Francisco"), we respectfully request that the State Water Resources Control Board's ("Board") consider our comments to the proposed updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ("Plan Amendment") and reconsider its decision to preclude any additional comments on the Final Substitute Environmental Document for the Plan Amendment ("Final SED").

On July 18, 2018, San Francisco requested that the Board recirculate the Final SED, or, at the very least, expand the scope of permissible comments to include comments on the Final SED, extend the comment deadline by 30 days, and postpone the public hearing ("San Francisco's Letter"). By letter dated July 19, 2018, the Board denied San Francisco's request in its entirety, stating that recirculation is not required under the California Environmental Quality Act ("CEQA") or the CEQA Guidelines because the changes in the Final SED "do not result in any new potentially significant adverse impacts on the environment, any substantial increase in the severity of potentially significant adverse impacts on the environment, or establish any new feasible project alternatives or mitigation measures."¹ But San Francisco never asserted that recirculation was required under those bases.

Instead, as noted in San Francisco's Letter, Title 14, California Code of Regulations, section 15088.5(a)(4) provides that recirculation is also required if "[t]he draft [Environmental

¹ Letter from Eileen Sobeck, Executive Director, State Water Resources Control Board, to Dennis Herrera, City Attorney, and Jonathan Knapp, Deputy City Attorney, San Francisco City Attorney's Office, July 19, 2018, at 2.

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Impact Report (“EIR”)] was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.” (*See also* Cal. Code Regs., tit. 23, § 3779(e).) The Board’s analysis in the Final SED of San Francisco’s potential actions in response to implementation of the Plan Amendment is “fundamentally and basically inadequate and conclusory in nature” because, among other reasons, it excludes any consideration of increased water supply rationing. The Board’s July 18, 2018 letter did not respond to this argument at all.

Under protest, and without waiving any legal claims that the Board has violated, among other things, its obligation to recirculate the Final SED under the CEQA Guidelines and California Code of Regulations, Title 23, California Code of Regulations, section 3779(e), San Francisco submits the following comments and urges the Board not to adopt the Plan Amendment or the Final SED.

San Francisco’s Comments on the Plan Amendment

1. The Board Is Not Authorized to Require Implementation of the Water Quality Objectives Through the Adoption of Regulations.

The Plan Amendment states—we believe for the first time since the Board’s Plan Amendment process began over six years ago—that “the State Water Board may implement the [water quality] objectives by conducting water right proceedings, *which may include adopting regulations*, conducting adjudicative proceedings, or both, that take into consideration the requirements of the Public Trust Doctrine and the California Constitution, article X, section 2.”² The Board states that the addition of the phrase “including adopting regulations” is intended to clarify the “implementation measures within the State Water Board’s authority.”³ However, the Board has no authority to implement the Plan Amendment through such quasi-legislative means.

This newly stated implementation authority—*i.e.*, conducting water rights proceedings by rulemaking—appears to be a continuation and expansion of the Board’s recent flawed proposal to adopt a Regulation on Waste and Unreasonable Water Uses to implement conservation measures by rulemaking. As the SFPUC informed the Board in a letter dated December 22, 2017, in the context of the waste and unreasonable use regulations, the Board does not have authority to restrict or limit the exercise of water rights without due process of law.⁴ Water rights are real property that can be restricted only after the opportunity for a hearing and the presentation of evidence. To do otherwise would constitute an unlawful confiscation of property without due process of law. The Board’s exercise of authorities under the Public Trust Doctrine and article X section 2 of the California Constitution is adjudicative in nature, and demands fact-finding and balancing of numerous factors and consideration of the water rights of other diverters. This can only be accomplished by conducting comprehensive water right adjudicative proceedings. The Board’s rulemaking authority simply does not extend to restrictions on the otherwise lawful exercise of water rights.

² Appendix K at 26 (emphasis added).

³ Master Response 2.1 at 4. *See also id.* at 12

⁴ Comment Letter – Proposed “Prohibiting Wasteful Water Use Practices” Regulation, jointly submitted by the San Francisco Public Utilities Commission and the Bay Area Water Supply & Conservation Agency, December 22, 2017, attached hereto as Exhibit 1.

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Further, even if the Board had the authority to implement the Plan Amendment through rulemaking, the Final SED fails to analyze the exercise of such authority as required by CEQA. This new proposed basis of implementation authority was not described in the Draft SED or prior versions of the proposed program of implementation and the public and affected parties have not had an opportunity to comment on the potentially significant environmental impacts of a rulemaking implementation approach. Moreover, the Final SED does not fully describe the proposed action and does not analyze the potential environmental impacts from a rulemaking approach such as might be the case if the Board does not take water rights priorities into account when it allocates responsibilities to water users to meet the flow requirements in the Plan Amendment. By not describing a known potential implementation action in the Final SED, the Final SED inappropriately segments environmental review of the proposed action. As a result, the Final SED fails to identify potentially significant impacts that may result from the proposed action and the potential effects of the action as a whole. The Board must recirculate the proposed program of implementation to more fully describe how the Board might “conduct water right proceedings [by] adopting regulations,” revise the Final SED to analyze the potential environmental impacts associated with that approach, and recirculate the Final SED.

San Francisco’s Comments on the Final SED

1. The Board Failed to Analyze Impacts to the Bay Area from Increased Water Supply Rationing.

In its Responses to Comments, the Board recognizes that if it implements the Plan Amendment and a sequential-year drought occurs, San Francisco’s diversions from the Tuolumne River—on which the SFPUC relies to meet approximately 85% of demand for drinking water throughout the Bay Area—could be severely reduced.⁵ For example, assuming a reoccurrence of the historical hydrological conditions preceding and including the 1987-92 drought, under a 40% unimpaired flow (“UIF”) objective San Francisco would, on average, be responsible for contributing approximately 116 million gallons per day (“mgd”) per year for each year of the six-year drought period, or more than 43% of the water needed in the Bay Area.⁶ San Francisco has repeatedly explained to the Board that faced with such severe reductions it would be compelled to increase water supply rationing throughout the RWS service area.⁷ Yet the

⁵ See *e.g.*, Board’s Responses to Comments, Master Response 8.5, at 17 (where the Board incorrectly, as explained below, identifies the potential deficit to San Francisco’s water supply as 119,000 acre-feet/year or approximately 106 million gallons per day (“mgd”)).

⁶ See Declaration of Matt Moses in Support of Comments by the City and County of San Francisco to the Draft Substitute Environmental Document in Support of Potential Changes to the Bay-Delta Plan, *see* Attachment 1 to the Moses Decl., SFPUC Analysis of Proposed Changes to Tuolumne River Flow Criteria, March 14, 2017 (“2017 SFPUC Water Supply Analysis”), at 17, Table 9 (showing that the reduction would be 129,884 acre-feet (“AF”)/year for each of the 6 years; 129,884 AF = 116 mgd.) This analysis assumes an RWS demand of 265 mgd, which is San Francisco’s contract obligation and consistent with projected 2040 RWS demand.

⁷ The analysis in these Comments assumes a 51.7% flow contribution by San Francisco. As a water supply provider to over 2.6 million people throughout the Bay Area, San Francisco must utilize worst-case scenarios for water supply planning purposes. In presenting the potential water supply, environmental, and socioeconomic effects from certain interpretations of the Raker Act and the Fourth Agreement San Francisco does not waive arguments it may have about how the Raker Act or Fourth

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Board's analysis of San Francisco's potential actions in response to implementation of the Plan Amendment entirely excludes consideration of *any* increase in water supply rationing over the 20% level allowed by the SFPUC's current drought management plan.⁸ Instead, the Board has based its entire analysis of San Francisco's potential actions in response to the Plan Amendment on the unsupported assumption that San Francisco will be able to develop sufficient replacement water supplies in approximately four years, *i.e.*, prior to the Board's intended implementation of the Plan Amendment in 2022.⁹ It is patently unreasonable for the Final SED to omit consideration of even the *possibility* that San Francisco would need to increase water supply rationing in these circumstances. And as we explained in our July 17, 2018 letter, this critical omission precludes meaningful public review of and comment on the most reasonably foreseeable water supply, environmental, and economic effects of the Plan Amendment on the Bay Area.

2. The Board Failed to Use San Francisco's Eight-and-a-Half-Year Design Drought in its Modeling of Water Supply Impacts.

Following the 1987-92 drought, the SFPUC implemented the "design drought," which is a water supply planning methodology that ensures the SFPUC will retain adequate storage to withstand an eight-and-a-half year drought without imposing more than 20% system-wide rationing.¹⁰ The SFPUC subsequently approved the design drought as part of its adoption of the goals and objectives for the Water System Improvement Program ("WSIP").¹¹ The Final SED rejects use of San Francisco's design drought because it represents hydrological conditions more severe than historically experienced by the RWS.¹² CEQA requires, however, that the Board

Agreement should or will be interpreted in future proceedings before the Board, the Federal Energy Regulatory Commission, courts of competent jurisdiction, or in any other context.

⁸ See *e.g.*, Board's Responses to Comments, Master Response 1.1: General Comments ("Master Response 1.1"), at 47 (where the Board states it intends to implement the Plan Amendment by 2022); *see also* Master Response 8.5 at 49 (where the Board explains that rationing by the SFPUC throughout the RWS service area in response to the Plan Amendment would not exceed 20%, the maximum level of system-wide rationing that the SFPUC allows in its current drought management plan).

⁹ See *e.g.* Board's Responses to Comments, Master Response 1.1 at 47.

¹⁰ See *e.g.*, Comments by the City and County of San Francisco to the Draft Substitute Environmental Document in Support of Potential Changes to the Bay-Delta Plan ("San Francisco's 2017 Comments"), March 17, 2017, at 18-19, n.26 (explaining that the SFPUC's design drought is based on the hydrology of the six years of the worst sequential historical drought, 1987-1992, plus the two and a half years of the 1976-1977 drought, for a combined total of an eight-and-a-half-year design drought sequence).

¹¹ San Francisco Public Utilities Commission, Resolution No. 08-0200, attached hereto as Exhibit 2 (where the SFPUC approved the performance objective to "[m]eet dry-year delivery needs through 2018 while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts," which incorporates the eight-and-a-half year design drought methodology).

¹² Master Response 8.5 at 15, 18.

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consider impacts to San Francisco from implementation of the Plan Amendment in accordance with the SFPUC's existing, adopted policies, such as its design drought.¹³

San Francisco developed its design drought after having lived through the consequences of basing the SFPUC's water supply operations "in accordance with rules based only on historical data."¹⁴ Prior to the 1987-1992 drought, the SFPUC had based its water supply planning on "the experience of many years of historical operation, including the knowledge of previous drought events such as had occurred in 1976-1977."¹⁵ It was therefore inadequately prepared when the 1987-1992 drought broke new records. As explained by the General Manager of the SFPUC during that drought, San Francisco "learned the painful lesson as to the adverse impacts that are caused by not planning for a drought worse than any experienced to date when the hydrology of the Tuolumne River and the City's operations through 1990 and early 1991 had created a situation where a 45 percent rationing program among City customers was initiated – a level of rationing that was found to be intolerable and not achievable."¹⁶ "[G]iven the dire consequences of just being wrong in the forecasting of the length of drought that may hit the City" San Francisco responsibly relies on its water supply planning methodology to ensure it retains adequate water supplies during sequential-year droughts.¹⁷ CEQA requires that the Board must take into account San Francisco's design drought when assessing impacts to the Bay Area from implementation of the Plan Amendment.

3. Although the Board Concedes that the SFPUC's Hydrological Model is More Precise than the Board's Model, it Refuses to Use the SFPUC's Modeling Results.

The Board concedes that the SFPUC's Hetch Hetchy and Local System Model ("HHLSM") model is more precise than the Board's Water Supply Effects ("WSE") model for calculating water supply effects to the RWS service area, yet the Board fails to use the HHLSM modeling results in the Final SED.¹⁸ For example, instead of using the correct HHLSM figure

¹³ Master Response at 52 (emphasis added) (where Board mischaracterizes San Francisco's adherence to the approved design drought methodology, the SFPUC's associated modeling of water rationing that would be required under a 40% UIF objective across the historical hydrology, and San Francisco's other supporting evidentiary submissions and related comments as a mere "statement of intent" that the Board may disregard at its own discretion: "*a statement of intent regarding future extreme water rationing is not sufficient and reliable information on which to base an environmental analysis of related impacts.*")

¹⁴ Affidavit of Anson B. Moran ¶¶ 7, 16 Project No. 2299, January 26, 1994 (referred to below as "Moran Decl."), attached to San Francisco's 2017 Comments as Exhibit 7.

¹⁵ Moran Decl. ¶ 7.

¹⁶ *Id.* ¶ 8.

¹⁷ *Id.* ¶ 16.

¹⁸ Master Response 8.5 at 16 (explaining, [w]hile the HH/LSM is a more detailed model that simulates operation of the RWS service area, the WSE model and water bank balance provide similar water supply effects as the HH/LSM under the SFPUC middle demand level and SED Scenario 2"); *id.* at 18 (where the Board acknowledges, "[t]he SED uses a simple method to assess potential water supply reductions in the absence of having access to a model that simulates the operation of the entire RWS service area.").

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for potential annual reductions to the SFPUC's water supply under a 40% UIF objective, assuming San Francisco's contract obligation of 265 mgd and a reoccurrence of the historical hydrological conditions preceding and including the 1987-92 drought, *i.e.*, 116 mgd or 129 thousand acre-feet/year ("TAF"), the Board continues to use 106 mgd or 119 TAF.¹⁹ Similarly, although HHLMS shows significant impacts to San Francisco under a 40% UIF objective across the historical hydrological record, including years other than the 1987-1992 drought period, the Board continues to assert, "in all other years [outside of the 1987-92 drought period], SFPUC's water supply would not be affected and would be replenished."²⁰

The Board's flawed analysis of water supply impacts to San Francisco from implementation of the Plan Amendment is attributable to two primary factors. First, the Board ignores San Francisco's dry-year management operations, including use of the design drought, and thus does not begin counting water supply impacts to the RWS until later in a drought sequence. This means that "shorter dry periods in which SFPUC experiences water supply shortages are not captured" in the Board's modeling.²¹ Instead, the Board employs an "arbitrary" method of counting impacts to San Francisco that "is not based on SFPUC practices or explained logically in the [Board's] analysis."²²

Second, the Board applies an incorrect percentage for determining the level of San Francisco's contribution to flow requirements on the Tuolumne River under the 1966 Fourth Agreement ("Fourth Agreement"), and thus over counts impacts to the RWS for the dry years in which the Board acknowledges that the SFPUC's water supply would be reduced under implementation of the Plan Amendment. Specifically, instead of using 51.7%, the percentage of increased Tuolumne River flows that San Francisco may be responsible for contributing under the Fourth Agreement,²³ the Board's analysis incorrectly applies 57.1% to calculate San

¹⁹ *Id.* at 17 (where the Board identifies—but does not correct—the discrepancy).

²⁰ *Id.* at 13; *cf.* 2017 SFPUC Water Supply Analysis at 11 (showing that, assuming San Francisco's contract obligation of 265 mgd, under a 40% UIF objective on the Tuolumne River San Francisco would also be compelled to impose water supply rationing of 40% or more if the historical hydrological conditions experienced in the following fiscal years were to reoccur: fiscal years 1924-25, 1929-32, 1933-35, 1948-49, 1955-56, 1960-63, 1964-65, 1972-73, 1976-78, 1987-88, 1994-95, and 2007-09). Although FY 1987-88 is included in the Board's description of the 6-year drought, the Board does not assign any impacts for that year under its methodology. Memorandum from Matt Moses, Water Resources Engineer, San Francisco Public Utilities Commission, July 26, 2018 ("2018 Moses Memo"), attached hereto as Exhibit 3, at 2 n.2.

²¹ 2018 Moses Memo at 3.

²² *Id.* at 1-2 (where Mr. Moses generally describes the method used by the Board to calculate water supply impacts to San Francisco from implementation of the Plan Amendment).

²³ *See* San Francisco's 2017 Comments, at 3-5 (providing detailed explanation of San Francisco's obligations under the Fourth Agreement).

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Francisco's flow contribution.²⁴ Accordingly, the Board's analysis under estimates, or completely ignores, water supply impacts to the RWS in shorter drought sequences, and over estimates impacts to the RWS in longer drought sequences.²⁵

4. The Board Failed to Substantively Consider the SFPUC's Methodology for Estimating Socioeconomic Impacts from Increased Rationing.

The Board acknowledges that if sufficient alternative water supplies are not available to San Francisco to replace the reductions required by implementation of the Plan Amendment, "water rationing measures that would negatively affect commercial and industrial enterprises in CCSF's service area" would have severe economic effects "more than 100 times greater . . . than [the Board's purported] water supply planning approach."²⁶ But the Board nevertheless fails to substantively analyze *any* economic effects of increased rationing. In fact, the Board draws this comparison solely to support its summary dismissal of San Francisco's socioeconomic analysis by remarkably concluding that the Board's approach is more cost-effective.²⁷ The Board states that its economic analysis presented in Appendix L—which only considers rate impacts attributable to the cost of purchasing the requisite volume of replacement water—"is based on the *logical assumption* that additional water supplies are available, and these supplies could be developed to address potential shortages associated with implementing the plan amendments."²⁸ As San Francisco has repeatedly explained, however, our socioeconomic analysis is based on the *practical reality* that the SFPUC would not be able to obtain or develop sufficient alternative water supplies in the near term to make up for the unprecedented reduction in San Francisco's water supply, *i.e.*, 43% of the drinking water needed to serve the Bay Area for each year of a sequential-year drought, and thus the SFPUC would be compelled to increase rationing throughout the RWS service area by more than 20%. Further, because the Board does not analyze *any* rate impacts associated with constructing one (or more) large-scale desalination facilities, or other critical infrastructure, that would likely be necessary to make up for the substantial reduction in water supply, its economic analysis of the "mix of different water supply sources" is woefully inadequate and fails to disclose to the public the actual costs and economic impacts of the Plan Amendment.²⁹ This is hardly a good faith, reasoned analysis in response to

²⁴ *Id.* at 2 (explaining that this appears to be "a simple typographical error in the spreadsheet" the Board used for its analysis).

²⁵ *Id.* at 2-3, Table 1.

²⁶ Master Response 8.5 at 44, 51-52.

²⁷ *Id.* at 44; see also *id.* at 5 (where Board rationalizes its decision to omit any substantive consideration of San Francisco's economic analysis by arguing that its "water supply planning approach" is "economically justified.").

²⁸ *Id.* at 44 (emphasis added).

²⁹ *Id.* Significantly, the model the Board relied on to estimate rate impacts associated with the cost of purchasing water in the Final SED, IMPLAN, would have been equally appropriate for assessing rate impacts associated with constructing facilities and infrastructure, such as a large-scale desalination plant.

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San Francisco's prior comments regarding the Plan Amendment's detrimental effects on the Bay Area's economy.³⁰

5. San Francisco's Socioeconomic Analysis Appropriately Relies on the Best Available Price Elasticity Data.

In the Final SED, the Board criticizes San Francisco's economic expert, Dr. David Sunding, for using commercial/industrial/institutional employment and output multipliers from a 1994 study by MHB Consultants, Inc. ("MHB Study") in his 2014 draft report on socioeconomic impacts of water shortages within the RWS service area, and his 2017 report on socioeconomic impacts to the Bay Area from instream flow requirements on the Tuolumne River.³¹ The MHB Study presented the results of a survey of commercial, industrial and institutional water customers to assess the responsiveness of their level of production to a reduction in water deliveries. The Board asserts that: (1) the MHB survey is outdated; (2) the MHB survey reflects an "upward bias" because it was conducted shortly after the 1987-92 drought, and MHB Consultants, Inc. used marginal coefficients to estimate the response of businesses to water shortages; and, (3) the response rates, *i.e.*, 13% for commercial and 30% for industrial businesses "are considered very low," raising the question as to whether the sample is representative of the larger population.³²

As explained in the attached memorandum from Dr. Sunding, dated July 26, 2018, the Board's critiques of the MHB Study is unwarranted. First, the MHB Study remains the "best available evidence of its kind" to date, and thus "is a standard reference commonly utilized by water agencies and consultants when analyzing planning and resource allocation decisions."³³ Second, in survey research it is preferable to query survey respondents about actions that they recently undertook. Surveying shortly after the 1987-92 drought did not result in a bias but rather likely produced more accurate results.³⁴ Finally, the 30% and 13% response rates for the

See Memorandum from David Sunding, The Brattle Group, Inc., to San Francisco Public Utilities Commission, July 26, 2018 ("2018 Sunding Memo"), attached hereto as Exhibit 4, at 2.

³⁰ San Francisco's 2017 Comments, 27-32; see e.g., *Santa Clarita Organization for Planning the Environment v. County of Los Angeles* (2003) 106 Cal.App.4th 715, 723 (citing *Cleary v. County of Stanislaus* (1981) 118 Cal.App.3d 348, 357 (emphasis added) [explaining that "[i]t is not enough for the EIR simply to contain information submitted by the public and experts. Problems raised by the public and responsible experts require a good faith reasoned analysis in response. The requirement of a detailed analysis in response ensures that stubborn problems or serious criticism are not 'swept under the rug.'"]).

³¹ Master Response 8.5 at 20-21; *Bay Area Socioeconomic Impacts Resulting from Instream Flow Requirements for the Tuolumne River*, The Brattle Group, prepared by David Sunding, Ph.D., March 15, 2017, attached to San Francisco's 2017 Comments as Appendix 3.

³² Master Response 8.5 at 20.

³³ 2018 Sunding Memo at 1.

³⁴ *Id.*

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industrial and commercial sectors, respectively, are not very low but in fact are “typical of mail surveys that appear in the scientific literature.”³⁵

6. The Board Erroneously Relies on the SFPUC’s Long-Term Planning Documents to Establish the Alleged Availability of Alternative Water Supplies in the Near Term.

The Board asserts that the “common water strategies” it proposes are “viable and economically feasible options for SFPUC and other local agencies because they are identified as potential components of drought contingency plans.”³⁶ But the alternative water supply projects identified in the SFPUC’s long-term planning efforts, such as the 2015 Urban Water Management Plan (“2015 UWMP”), are intended to meet existing dry-year demand and projected 2040 demand in the RWS service area. The projects are not intended to provide replacement supplies to make up for the additional, unanticipated reductions caused by implementation of the Plan Amendment.³⁷

Further, the Board mischaracterizes San Francisco’s “approach” to analyzing impacts to the RWS service area that would result from implementation of the Plan Amendment as relying on the premise that the SFPUC would not even *attempt* to obtain or develop alternative water supplies.³⁸ The SFPUC is actively involved in efforts to diversify the sources of its water supply, as reflected in the SFPUC’s long-term planning efforts. But alternative water supply projects are difficult to fund, require many years to develop, and often represent limited

³⁵ *Id.* at 2.

³⁶ Master Response at 23. See also *id.* at 49 (where Board argues that its “water supply planning approach” is consistent with San Francisco’s 2015 Urban Water Management Plan and the “SFPUC’s own management actions and those typically taken by other water suppliers.”).

³⁷ Significantly, in San Francisco’s 2017 Comments, we previously explained that any additional yield San Francisco may be able to obtain from potential, future projects identified in the SFPUC’s long-term planning efforts, *e.g.*, water transfers or some portion of yield from a regional desalination plant located in the Delta, would be used to meet existing dry-year demand and/or 2040 demand. See San Francisco’s 2017 Comments at 84-86, 94-95.

³⁸ Board’s Comment Response Letter 1166, Table 4-1. Response to Comments, Response to Comment 1166-10 (emphasis added) (where the Board states that its analysis of potential actions in response by San Francisco to implementation of the Plan Amendment did not include “the severe mandatory rationing described by SFPUC because it was not reasonably foreseeable that a water supplier would impose drastic mandatory rationing on its customers *without first attempting other actions to replace any reductions in water supplies with alternative sources of water*, such as through water transfers.”); see also Master Response 8.5 at 49 (emphasis added) (where Board states that under San Francisco’s “water-rationing only approach” the “SFPUC would not pursue opportunities to supplement current water supplies or to replace any of the potential water supply reductions” because the “*intent*” of San Francisco’s approach “is to deliver the limited available supplies *without expanding yields from existing sources of water or without developing water supplies from new sources*.”).

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additional yield.³⁹ Here, these obstacles are especially challenging given that the Board intends to implement the Plan Amendment by 2022. As the third largest municipal water provider in California, the SFPUC must responsibly plan for the pragmatic, worst case scenario, which is that notwithstanding the SFPUC's efforts to obtain and develop alternative supplies by 2022, no significant additional yield may be available within the next four years.⁴⁰

7. The Three Methods of Compliance for San Francisco Identified in the Final SED Rely on Unsupported Assumptions.

A. The Board's Assumptions Regarding a Large-Scale Water Transfer Are Unsupported.

In the Final SED, the Board included several charts from a Pacific Institute Report in an apparent effort to support its assumption that a massive volume of water will be available for transfer from the Central Valley to San Francisco during future, sequential-year droughts to replace the reduction in the Bay Area's water supply following implementation of the Plan Amendment.⁴¹ Specifically, the Board includes a chart excerpted from the Pacific Institute Report which shows that a substantial volume of transfer water was purchased by municipalities from the agricultural sector between 2009 and 2014.⁴² But the Pacific Institute Report includes a subsequent chart, excerpted below, that the Board did not include in the Final SED, which clarifies that the vast majority of the water transferred during that period went to the "South Coast," *i.e.*, southern California, not the Bay Area.⁴³

³⁹ See *e.g.*, 2018 Sunding Memo at 3 (where Dr. Sunding explains that "many potential water transfers may look attractive in theory but are never implemented due to a host of political, technical, or legal reasons.").

⁴⁰ The Final SED also rejects San Francisco's analysis of impacts from rationing because, according to the Board, it is "an unproven approach that has not been implemented at the suggested scale described by SFPUC." Master Response 8.5 at 19. Of course, at its core, the Board's "water supply planning approach" relies on nothing more than the convenient "assumption" that beginning in 2022 an unprecedented volume of dry-year supplies will be available to the SFPUC throughout subsequent sequential-year droughts of potentially increasing severity and duration.

⁴¹ See *e.g.*, Master Response 8.5 at 28 (*citing* "Impacts of California's Ongoing Drought: Agriculture," Pacific Institute, August 2015 7 [referred to below as "Pacific Institute Report"], at 14, Figure 7) (where Board excerpts chart from Pacific Institute Report showing total volume of water transfers between 2009 and 2014 by buyer sector).

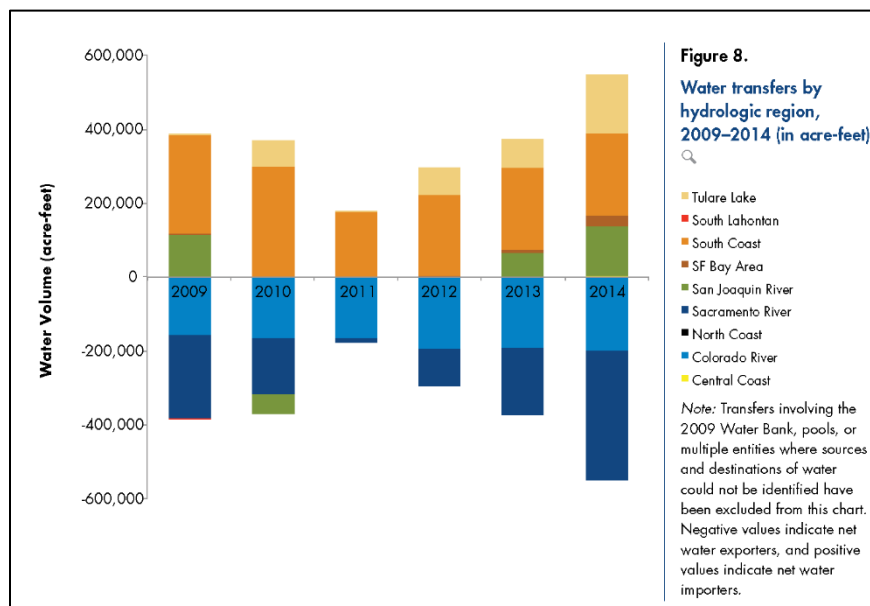
⁴² Master Response at 28.

⁴³ Pacific Institute Report, at 15, Figure 8.

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In fact, Figure 8 shows that transfers from agriculture to the Bay Area during the recent drought comprised a relatively meager share of the overall volume of water transferred. This dynamic occurred during the 1987-92 drought as well, where the Metropolitan Water District of Southern California purchased the lion's share of water available through the now-defunct state administered drought water bank.⁴⁴ As Figure 8 above demonstrates, it is reasonable to assume there will be significant competition from Southern California for any agricultural water that may be available to transfer to the Bay Area in future sequential-year droughts.

Further, as noted by the authors of the Pacific Institute Report, as the drought intensified "a large volume of water [was] transferred to the Tulare Lake and San Joaquin River regions, the nation's leading agriculture areas."⁴⁵ Given the accelerating trend of farmers shifting to higher-value crops such as fruits and nuts that require water year around and cannot be fallowed during drought periods,⁴⁶ it is reasonable to assume that there will also be significant competition from the San Joaquin Valley for any future water available for transfers from the North Coast.

Finally, it is improper for the Board to continue to rely on the environmental analysis in the WSIP for a potential 2 mgd transfer between San Francisco and the Modesto Irrigation District and Turlock Irrigation District ("Districts") implemented through conservation to analyze impacts that would result from an exponentially larger transfer of water to be made up

⁴⁴ See San Francisco's 2017 Comments, at 68, n.185 (citation omitted) (noting that of the 389,970 AF in total water purchases from the 1991 state water bank by twelve entities, the Metropolitan Water District of Southern California accounted for 55% of purchases).

⁴⁵ Pacific Institute Report at 15.

⁴⁶ *Id.* at 8.

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through groundwater substitution.⁴⁷ The Board needs to identify a legitimately comparable environmental analysis, *i.e.*, for a project that involved the transfer of a large volume of surface water from an agricultural water district to a municipality in which the water district then replaced the exported water through increased groundwater pumping.⁴⁸

B. The Board Has Failed to Support its Assumptions Regarding a Large-Scale Desalination Plant at Mallard Slough.

The Board's passing references in the Final SED to a 12 mgd desalination plant in Newark and a planned 6 mgd desalination plant in Antioch fail to support the Board's assumption that San Francisco will be able to develop a large-scale desalination plant at Mallard Slough, especially by 2022.⁴⁹ The Board conducted no substantive analysis of either the Newark or Antioch projects, and fails to provide a good faith, reasoned explanation for why these projects are comparable to the large-scale desalination plant in Mallard Slough envisioned in the Final SED.⁵⁰ In fact, each of these projects reflects a fraction of the total production capacity of the Poseidon Desalination Facility in Carlsbad, *i.e.*, 56,000 AF/year or approximately 50 mgd.

Further, the Newark Desalination Facility was placed into service in 2003,⁵¹ over a decade prior to enactment of the 2015 Ocean Plan Amendments, which, as San Francisco has previously explained, applied new regulatory requirements to all new desalination projects.⁵²

⁴⁷ See San Francisco's 2017 Comments at 80-82.

⁴⁸ Master Response at 31-32 (where the Board confusingly asserts, among other things, that "the SED, however, does not limit its transfer discussion to a particular type of transfer, such as a conserved water transfer."). In fact, the Final SED assumes that reductions in surface water under the Plan Amendment would be replaced by increased groundwater substitution. See Chapter 16 at 16-14 (emphasis added) (where the Final SED explains, "[c]hapter 9 assumes that reductions in surface supply would be replaced with groundwater pumping up to a maximum amount. Based on this analysis, significant impacts would occur on four primary subbasins [Eastern San Joaquin, *Turlock, Modesto*, and the extended Merced].").

⁴⁹ Master Response 8.5 and 32-33 (where the Board generally discusses brackish water desalination projects in the state and specifically identifies the Newark plant and planned Antioch project).

⁵⁰ See *e.g.*, Chapter 16 at 16-71 (emphasis added) (where the Board explains that "[a] desalination project would likely need to be larger than analyzed in the WSO report, or the BARDP feasibility studies, for LSJR Alternatives 3 and 4. Therefore, costs and environmental impacts associated with the larger Poseidon Desalination Facility in Carlsbad are also provided below."). Notwithstanding the Board's reliance on "costs and environmental impacts" associated with the Poseidon Desalination Facility in its analysis of a potential desalination plant at Mallard Slough, in its responses to San Francisco's 2017 Comments the Board remarkably states "[t]he SED does not assume that a 56,000 AF/y [sic] would be required or considered at Mallard Slough or [sic] any other location." Table 4.1. Responses to Comments, Response to Comment Letter 1166-69.

⁵¹ Alameda County Water District website, available at <http://www.acwd.org/index.aspx?NID=383> (providing description of Newark Desalination Facility).

⁵² San Francisco's 2017 Comments at 91.

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The Board's analysis in the Final SED continues to fail to take into consideration these new regulatory requirements.

C. The Board Has Failed to Support its Assumptions Regarding an In-Delta Diversion Project.

The Board's supplemental analysis in support of its in-Delta diversion proposal is not only "fundamentally and basically inadequate and conclusory in nature," it is also nonsensical. The Board states:

Therefore, an agency determination that an in-Delta diversion was infeasible under one set of circumstances does not render it infeasible in all future circumstances. Thus, in light of changed circumstances since 2008 and increasing awareness of the need to prepare for a variety of hydrologic and water supply conditions in the future, *it is reasonable to identify an in-Delta diversion as one potential action in a suite of actions to augment water supplies regardless of whether SFPUC ultimately concludes in the future that an in-Delta diversion remains infeasible.*⁵³

The Board not only acknowledges that the SFPUC has already analyzed the possibility of a new in-Delta diversion project and determined that it was infeasible, but also concedes that the project may well remain infeasible. In fact, the referenced "changed circumstances since 2008,"⁵⁴ *i.e.*, "Pelagic Organism Decline, climate change, California WaterFix, and the State Water Board's Final Report on the Development of Flow Criteria for the Sacramento Delta Flow Criteria,"⁵⁵ indicate there will be stricter regulation and/or more restrictive environmental conditions in the Delta that would likely make a new in-Delta diversion even less feasible.⁵⁶ Nevertheless, the Board continues to insist that it is reasonable to include this project as one of San Francisco's potential responsive actions to implementation of the Plan Amendment.

8. The Board's Assumption that Implementation of the Plan Amendment Would Result in Minimal Effects to Economic Growth and Housing Starts in the Bay Area is Unsupported.

The Final SED asserts, "[a]s demonstrated during the recent drought, limited water supplies and increases in water rates to encourage conservation do not appear to have materially affected current levels of economic growth in the Bay Area."⁵⁷ This statement ignores the critical fact that the reduction in RWS system deliveries in fiscal year 2015-16 of approximately 20% did not exceed the "tipping point" that would require rationing in the commercial and

⁵³ Master Response at 8.5 at 33 (emphasis added).

⁵⁴ *Id.*

⁵⁵ Appendix L at 24.

⁵⁶ *See* San Francisco's 2017 Comments at 96.

⁵⁷ *Id.* at 47.

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industrial sectors.⁵⁸ As San Francisco has previously explained, the first 20% to 30% of RWS water supply reductions can generally be borne by the residential sector and dedicated irrigation alone.⁵⁹ Therefore, one would not expect to see significant losses in business sales or jobs in the Bay Area attributable to the recent drought. The magnitude of the reductions that San Francisco could be required to impose if the Plan Amendment is implemented and a sequential-year drought occurs, would result in much higher rationing levels that exceed the 20-30% tipping point, and thus would directly affect the commercial and industrial sectors.⁶⁰ By ignoring entirely the possibility of such higher rationing levels, the Board fails to acknowledge, much less analyze, the potential economic impacts to the Bay Area of the Plan Amendment.

Further, the fact that housing starts in some parts of the Bay Area may have increased between 2009 and 2017 does not mean that severe reduction of the Bay Area's dry year and future water supply would not pose a risk to regional growth.⁶¹ Contrary to the Board's contention, the Plan Amendment could also "alter the existing condition" of development in the lower-cost Central Valley, as opposed to the Bay Area, by significantly accelerating it as people migrate outward to areas with more reliable dry year and future water supplies.⁶²

9. The Board Failed to Analyze the SFPUC Alternative as a Reasonable Alternative to the Plan Amendment.

In San Francisco's 2017 Comments, we included a reasonable, science-based alternative for Tuolumne River ecosystem improvements that would meet fish and wildlife beneficial uses on the river without the significant environmental and economic impacts to the Bay Area that

⁵⁸ 2017 SFPUC Water Supply Analysis at 1-2 (noting that in fiscal year 2015-16 system-wide deliveries were reduced by 21.5% as compared to RWS deliveries prior to the recent drought, in fiscal year 2012-13); see *id.* (where Mr. Moses explains, "[i]n response to drought conditions, SFPUC requested rationing within the retail wholesale service area during this period, and the State of California also mandated rationing for all municipal water agencies during this period. The reduced demand relative to fiscal year 2012-2013 is attributed to these calls for rationing.").

⁵⁹ San Francisco's 2017 Comments at 28 (this assumes a pre-drought level of water supply demand of 223 mgd within the RWS service area). See also Declaration of David L. Sunding in Support of Reply Comments of the City and County of San Francisco, Don Pedro Hydroelectric Project Relicensing Proceeding, Federal Energy Regulatory Commission Project No. 2299, March 13, 2018, attached hereto as Exhibit 5, at ¶ 9.

⁶⁰ For example, assuming 1987-1992 hydrology and maximum SFPUC contract deliveries of 265 mgd, the additional reduction in water supply San Francisco would experience under a 40 percent unimpaired flow objective on the Tuolumne River, *i.e.*, 129,884 AF/year for each of the 6 years, would result in a 40% reduction in deliveries for the first year of the drought, and a 54% reduction in deliveries in each of the subsequent 5 years. 2017 SFPUC Water Supply Analysis at 16, Table 9; *id.* at 10, Table 2.

⁶¹ See Master Response 8.5 at 48.

⁶² See Master Response 6.1 at 13.

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would result under the Plan Amendment (“SFPUC Alternative”).⁶³ The Board neither analyzed the SFPUC Alternative in detail, nor analyzed the relative merits of the SFPUC Alternative as compared to other alternatives, based on the Board’s conclusion that the SFPUC Alternative “fails to meet the fundamental purpose and goal to establish flow objectives for the reasonable protection of fish and wildlife beneficial uses in the [Lower San Joaquin River] watershed.”⁶⁴ Modeling results presented as part of the SFPUC Alternative predict a significant relative increase in fall-run Chinook salmon smolt productivity on the Tuolumne River compared to current conditions while remaining reasonably protective of water supply reliability. Based on the Board’s conclusory analysis of the SFPUC Alternative, however, it appears that the Board entirely ignored the fishery benefits of San Francisco’s proposal.

Thank you for your consideration of our comments.

Very truly yours,

DENNIS J. HERRERA
City Attorney

-s-

Jonathan P. Knapp
Deputy City Attorney

cc: Via Electronic Mail Only
Michael Carlin, Deputy General Manager and Chief Operating Officer, SFPUC

⁶³ San Francisco’s 2017 Comments, Attachment 2, Alternative to promote expansion of fall-run Chinook salmon and *Oncorhynchus mykiss* populations in the lower Tuolumne River while maintaining water supply reliability (“SFPUC Alternative”), at 1.

⁶⁴ Master Response 2.4 at 21.

EXHIBIT 1



Robert E. Donlan
red@eslawfirm.com

December 22, 2017

***VIA ELECTRONIC
AND UNITED STATES MAIL***

Chair Felicia Marcus and Board Members
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Re: Comment Letter – Proposed “Prohibiting Wasteful Water Use Practices” Regulation

Dear Ms. Townsend:

On behalf of the San Francisco Public Utilities Commission (“SFPUC”) and the Bay Area Water Supply & Conservation Agency (“BAWSCA”), we submit the following comments on the State Water Resources Control Board’s (“SWRCB”) proposed “Wasteful and Unreasonable Water Use Practices” regulation (“Regulation”). The proposed Regulation would be added as Section 963 of Title 23 of the California Code of Regulations if approved by the Office of Administrative Law. As the SWRCB is aware, SFPUC and BAWSCA are state leaders in urban water conservation and strongly support the Governor’s and the SWRCB’s objective of making conservation a way of life in California, including the implementation of enhanced conservation efforts to maximize the beneficial use of water in the State. However, SFPUC and BAWSCA strongly oppose the Regulation to the extent it relies on the Reasonable Use Doctrine to declare certain water uses and practices per se “wasteful and unreasonable” by means of a permanent statewide regulation. Such a regulation is contrary to law, inequitable to water right holders affected by the Regulation, and contrary to the current State policy of encouraging water conservation without impacting water rights. The Regulation is a dangerous and unnecessary

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precedent at a time when the SWRCB and water users should be working together to solve the State's water shortage problems. We urge the SWRCB to amend the Regulation to better align it with established law and the State's policy of encouraging (or even mandating) water conservation while protecting water rights.

1. The Regulation is an Improper Exercise of the SWRCB's Authority to Prevent Waste and Unreasonable Use.

Article X, Section 2 of the California Constitution states in pertinent part that:

It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water.

(Cal. Const., Art. X, § 10; See also, Wat. Code § 100.) The purpose behind Article X, section 2 is to limit the amount of water diverted and used to a quantity that is reasonably necessary for a beneficial purpose. The SWRCB is authorized to take action to prevent waste and the unreasonable use of water, including the authority to enact regulations to promote the reasonable and beneficial use of water to the maximum extent possible. (Wat. Code § 275; *Light v. SWRCB* (2014) 226 Cal.App.4th 1463.) The SWRCB cannot, however, adopt a permanent statewide regulation declaring a particular activity or category of water use per se wasteful or unreasonable without undertaking some form of process to determine the factual basis of waste and unreasonable use on a case by case basis. To do so restricts the vested rights of water right holders to the use of water without due process.

a. Waste and Unreasonable Use Determinations Must Provide a Process Whereby the SWRCB Considers All of the Relevant Facts.

Determining what constitutes unreasonable use or waste is a question of fact that is decided according to the specific circumstances of a particular situation. (*Gin S. Chow v. City of Santa Barbara* (1933) 217 Cal. 673, 706 [“This is but another way of saying that what is a useful and beneficial purpose and what is an unreasonable use is a judicial question depending upon the facts in each case” (emphasis added)]; *Joslin v. Marin Municipal Water District* (1967) 67 Cal.2d 132, 139 [“What is a reasonable use or method of use of water is a question of fact to be

determined according to the circumstances in each particular case”] (emphasis added)¹; *State Water Resources Control Board Cases* (2006) 136 Cal.App. 674, 762 [same]; *Light*, 226 Cal.App. 4th at 1479 [“California courts have never defined, nor as far as we have been able to determine, even attempted to define what constitutes an unreasonable use of water, perhaps because the reasonableness of any particular use depends largely on the circumstances”] (emphasis added); See also, SWRCB Revised Order WRO 2002-0013, p. 80 [“the reasonableness doctrine embodied in article x, section 2 of the Constitution calls for consideration of all relevant facts” (emphasis added)].) This foundational principle is directly related to the principle that a reasonable use determination (i.e., whether a quantity of water diverted and used is reasonable) may change with changed circumstances.² (See, *Tulare Dist. v. Lindsay-Strathmore Dist.* (1935) 3 Cal.2d 489, 567; *Light*, 226 Cal.App.4th at 1479, 1488.)

Both the courts and the SWRCB have rejected the notion that a broad per se reasonable use determination can be made for particular water uses. In the *State Water Resources Control Board Cases*, the court examined the argument that any use of water from New Melones Reservoir to dilute salinity levels in the San Joaquin River constituted an unreasonable use of water (i.e., such use was per se unreasonable in all circumstances).

To the extent the San Joaquin County parties can be understood to argue that *any* use of New Melones water to dilute salinity levels at Vernalis amounts to an unreasonable use of water, that argument fails. “What is a reasonable use or method of use of water is a question of fact to be determined according to the circumstances in each particular case.” [Citation.] Here, the Board determined that permitting the Bureau to use water from New Melones to dilute salinity levels at Vernalis was reasonable, and the San Joaquin County parties have not shown any error in that determination. Their reliance on *Jordan v. City of Santa Barbara* (1996) 46 Cal.App.4th 1245, 1270, 54 Cal.Rptr.2d 340, is misplaced because the court's assertion in that case that “[u]se of upstream water to wash out salts downstream is an unreasonable use of water” was an overstatement, given that reasonable use is a question of fact depending on the particular circumstances in each case. There certainly may be cases in which the release of water to dilute saline levels is unreasonable, but that is not always the case.

¹ While the court in *Joslin* found a specific use of water to be unreasonable as a matter of law, the court's determination was limited to the specific facts before it. (*Joslin*, 67 Cal.2d at 140 [“We are satisfied that in the instant case the use of such waters as an agent to expose or to carry and deposit sand, gravel and rock, is as a matter of law unreasonable within the meaning of the constitutional amendment”] [emphasis added].)

² This principle is simply a recognition that the consideration of changed factual circumstances *may* alter a reasonable use determination. A different reasonable use determination is not a given under changed circumstances but may occur and the possibility for such must therefore be recognized. This possibility precludes a blanket per se reasonable use determination that attempts to cover all circumstances.

(*State Water Resources Control Board Cases*, 136 Cal.App. at 762 [original italics] [underlined added].) In Revised Order WRO 2002-0013, the SWRCB addressed a request by a petitioner for the SWRCB to provide assurance that it would not reassess reasonable use during the period of the petitioner's water transfer absent a change in irrigation practices or irrigation efficiency technology. In refusing to provide the requested assurance, the SWRCB pointed out that "the reasonableness doctrine embodied in article X, section 2 of the Constitution calls for consideration of all relevant facts, not just a single fact such as irrigation efficiency." (Revised Order WRO 2002-0013, p. 80, 81 [emphasis added].) The SWRCB listed a number of other facts relevant to the reasonableness of the petitioner's water use, including the amount of water available, the fact that return flows contributed to flooding, and the fact that conservation measures were available. (*Id.* at p. 80.) The SWRCB also pointed out its "ongoing responsibility" to assess the reasonableness of the petitioner's water use based on the principle that a reasonable use determination may change with changed circumstances. (*Id.* at p. 81.)

The court's decision in *Light v. SWRCB* is consistent with the conclusion that the Reasonable Use Doctrine does not authorize the SWRCB to make blanket per se reasonable use determinations for particular water uses and actions. In discussing the Reasonable Use Doctrine, the court in that case noted the foundational principles that (1) the reasonableness of a specific use depends on the circumstances at issue, and (2) a reasonable use determination may change with changed circumstances. (*Light*, 226 Cal.App.4th at 1479.) More importantly, the SWRCB regulation reviewed and approved in that case had a limited focus on diversions from the Russian River for frost protection during specific times of the year and was not a permanent blanket per se reasonable use determination that applied statewide. The regulation at issue in that case delegated authority to local governing bodies to "develop and implement methods for monitoring 'stage,' or height, of the affected watercourses, determining when that stage poses a threat to young salmon, and responding with 'corrective actions' to reduce a threat once detected." (*Id.* at 1475-1476.) The regulation provided for a number of potential corrective actions and provided that diverters shall implement the corrective actions in accordance with a corrective action plan or cease diverting water for frost protection if the governing body determined that diversions for frost protection had the potential to cause stranding mortality. (*Id.* at 1476.) A diversion only constituted an unreasonable method of diversion and use if it was done in violation of the regulation. (*Id.*) Thus, the regulation was limited in scope, and the reasonable use determination was made only after consideration of various relevant factors (e.g, water levels, threats to salmon, corrective actions) that had to be considered to determine if diversions were made in violation of the regulation.

Based on the above, the SWRCB can only make a reasonable use determination pursuant to its authority under the Reasonable Use Doctrine after it has undertaken some process to consider all of the relevant facts associated with the use(s) being assessed. A permanent per se reasonable use determination that applies statewide and that is made as part of a quasi-legislative

proceeding does not allow for the necessary process and assessment required by the Reasonable Use Doctrine.

b. The Regulation is Too Broad.

The Regulation would permanently declare particular water uses and actions per se wasteful and unreasonable on a statewide basis:

The State Water Resources Control Board (State Board) has determined that it is a waste and unreasonable use of water under Article X, section 2 of the California Constitution to divert or use water inconsistent with subdivision (a)³ regardless of water right seniority, given the need for the water to support other more critical uses.

(Proposed 23 Cal.CodeRegs §963, Preamble.) The Regulation then lists a number of specific uses of water that are prohibited as waste and unreasonable use, as well as a number of prohibited actions that will purportedly cause waste and unreasonable use of water. (See, *Id.* at § 963(b)(1), (d)(1), (e).)

The Regulation does not itself consider or allow for the consideration of the myriad of relevant facts particular to each of the numerous potential situations that could arise involving the particular water uses and actions it targets. Nor has the SWRCB undertaken a process to establish a factual basis of waste and unreasonable use for every potential situation to which the Regulation may apply (i.e., to establish that at all times in all circumstances in all geographic areas of the State the prohibited uses constitute waste and unreasonable use). As demonstrated by the authority discussed above, the relevant facts for each situation may vary in number and character and cannot be addressed prospectively by a blanket per se reasonable use determination applying statewide.⁴ Further, the blanket reasonable use determination is permanent and fails to recognize the long-established principle that a reasonable use determination may change with changed circumstances. The SWRCB acknowledged this principle and its associated obligation in Revised Order WRO 2002-0013 wherein it stated that it would not bind itself to a long-term reasonable use determination because circumstances may change and to do so would be an abdication of its ongoing responsibility to assess reasonable use. (Revised Order WRO 2002-0013, p. 81.) The fact is that while the prohibited uses and actions targeted by the Regulation

³ It appears that the reference to subdivision “(a)” is an error, as that subdivision is a definitions section.

⁴ The dialogue among SWRCB members, SWRCB staff and stakeholders at the SWRCB’s November 21, 2017 public workshop about the need to exempt or carve out certain otherwise prohibited activities is proof that a statewide regulation cannot possibly account for all of the factors that go into a waste and unreasonable use determination. In addition, the proposed regulatory package cites various “benefits” that will result from the proposed Regulation, such as increased instream flows and fisheries benefits. However, there is no factual basis for these considerations in most parts of the State that would be affected by the proposed Regulation. Moreover, the regulatory package documents admit that one of the objectives of the proposed Regulation is to reallocate water to the environment, without providing any factual basis or due process.

may constitute waste and unreasonable use (i.e., the use of too much water) under some circumstances, there may be other circumstances wherein they are entirely reasonable.⁵ Therefore, the Regulation's blanket prohibition of particular water uses and actions is not authorized by the Reasonable Use Doctrine, and the Regulation constitutes an improper exercise of the SWRCB's authority under the Reasonable Use Doctrine.⁶

c. The Regulation Will Unnecessarily Diminish Water Rights and Prevent Water Right Holders from Receiving Credit for Conservation.

The Regulation and its supporting documents interchangeably characterize the prohibited actions as “waste and unreasonable use,” on the one hand, and as mandated “conservation” measures on the other hand. However, there is a significant legal difference between these two characterizations. The rule of reasonableness is a measure of a water right, and thus a water right cannot include the waste or unreasonable use of water. (*Central Delta Water Agency v. State Water Resources Control Board* (2004) 124 Cal.App.4th 245, 259 [“The state Constitution provides that the right to water or to use water is limited to such water as is ‘reasonably required for the beneficial use to be served,’ and does not extend to ‘the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water’”] (emphasis added); See also, *Joslin*, 67 Cal.2d at 138, 145, 146; *Light*, 226 Cal.App.4th at 1488.) If a water use is determined to be a waste or unreasonable use of water, the water right associated with the use will not include the use (i.e., it will be diminished). Thus, water savings resulting from the Regulation could not be deemed “conservation” to which a water right holder retains the right pursuant to Water Code section 1011.⁷ Instead, the savings would be lost to the water right

⁵ The exceptions to the Regulation (found in proposed Section 963(b)(2)) are extremely limited and do not allow for the consideration of the relevant facts particular to each situation or for a changed reasonable use determination under changed circumstances.

⁶ It is also questionable whether the Regulation is necessary under the circumstances. In its Notice of Proposed Regulatory Action (“Notice”), the SWRCB discussed the purported benefits of the Regulation. The Notice states that “[t]hrough the potential overall water saving[s] from the proposed regulation are likely to be relatively minor, the water savings associated with the proposed regulation would nonetheless realize or promote a number of the aforementioned benefits.” (Notice, p. 5.) However, the Notice acknowledges that “[t]he proposed regulation would not by itself necessarily achieve a significant level or amount of these benefits,” but “can reasonably be expected to have a positive impact.” (*Id.*) Boiling this down, the Regulation (1) will not result in any significant water savings, and (2) will not achieve a significant level of the benefits it aims to promote. Further, as stated by SWRCB staff in their November 21, 2017 presentation at the public workshop discussing the Regulation, the majority of the practices targeted by the Regulation are already prohibited by a majority of water suppliers. (See, 11-21-17 SWRCB Staff Presentation for Item #8, Slide 14.)

⁷ Water Code section 1011 states in relevant part that:

When any person entitled to the use of water under an appropriative right fails to use all or any part of the water because of water conservation efforts, any cessation or reduction in the use of the appropriated water shall be deemed equivalent to a reasonable beneficial use of water to the extent of the cessation or reduction in use. No forfeiture of the appropriative right to the water conserved shall occur upon the lapse of the forfeiture period applicable to water

holder, and theoretically could not be reported as conservation on annual statements of water diversion and use.

Given that the conserved water will not be credited to water right holders who comply with the Regulation's directives, the Regulation is unnecessarily punitive and appears designed to affect and limit water rights rather than simply achieve water savings while providing water right holders with credit for their conservation efforts. This is inconsistent with prior actions by the SWRCB wherein it took steps to ensure that conservation regulations would not impact water rights.

The California Constitution declares, at article X, section 2, that the water resources of the state must be put to beneficial use in a manner that is reasonable and not wasteful. Relevant to the current drought conditions, the California Supreme Court has clarified that "what may be a reasonable beneficial use, where water is present in excess of all needs, would not be a reasonable beneficial use in an area of great scarcity and great need. What is a beneficial use at one time may, because of changed conditions, become a waste of water at a later time." (*Tulare Dist. v. Lindsay Strathmore Dist.* (1935) 3 Cal.2d 489, 567.) In support of water conservation, the legislature has, through Water Code section 1011, deemed reductions in water use due to conservation as equivalent to reasonable beneficial use of that water. Accordingly, this regulation is in furtherance of article X, section 2 during this drought emergency. This temporary emergency regulation is not to be used in any future administrative or judicial proceedings as evidence or finding of waste and unreasonable use of any individual water user or water supplier subject to this regulation, and are not to affect or otherwise limit any rights to water conserved under applicable law, including without limitation, water conserved consistent with Water Code section 1011.

(SWRCB Resolution Nos. 2015-0032 ["To Adopt an Emergency Regulation for Statewide Urban Water Conservation"], ¶ 15 (emphasis added); 2016-0029 [Same], ¶ 21; 2017-0004 ["To Adopt a Regulation for Statewide Urban Water Conservation"], ¶ 13.) As discussed in Section 2 below, we suggest the SWRCB take a similar approach in this case to ensure that water right holders are credited for their conservation efforts.

appropriated pursuant to the Water Commission Act or this code or the forfeiture period applicable to water appropriated prior to December 19, 1914.

(Wat. Code § 1011(a).)

2. The SWRCB should Amend the Regulation to Encourage or Even Require "Conservation."

SFPUC and BAWSCA strongly support the policy of making water conservation a way of life in California, and request that the SWRCB amend the Regulation so that it focuses on encouraging or mandating conservation rather than unlawfully attempting to broadly determine and prohibit waste and unreasonable use. Such an approach could require the elimination of inefficient water use practices as conservation in furtherance of maximizing the beneficial use of water while protecting water right holders' rights to conserved water. This would be consistent with the SWRCB's authority to implement Article X, section 2 of the California Constitution by encouraging or mandating conservation in furtherance of maximizing the beneficial use of water while providing water right holders the protection afforded by Water Code section 1011. Attachment A submitted herewith includes proposed revisions to the Regulation consistent with SFPUC's and BAWSCA's requested approach.

SFPUC and BAWSCA appreciate the opportunity to comment on the Regulation.

ELLISON SCHNEIDER HARRIS & DONLAN LLP

By Robert E. Donlan
Robert E. Donlan for SFPUC

HANSON BRIDGETT LLP

By Nathan A. Metcalf
Nathan A. Metcalf for BAWSCA

ATTACHMENT A

ATTACHMENT A

PROPOSED TEXT OF REGULATION

Title 23. Waters

Division 3. State Water Resources Control Board and Regional Water Quality Control Boards

Chapter 2. Appropriation of Water

~~Article 22. Prevention of Waste and Unreasonable Use~~

Chapter 3. Determination of Right to the Use of Water

Article 2. Adjudications Under Water Code Sections 2500 Through 2900

Chapter 3.5. Conservation and the Prevention of Waste and Unreasonable Use

Article 1. Prevention of Waste and Unreasonable Use

~~§ 955. Claims to Water Supplied by District or Water Company. [Renumbered]~~

~~§ 855.~~§ 955. Policy and Definition.

(a) In investigating any uses of water and making the determinations required by this article, the board shall give particular consideration to the reasonableness of use of reclaimed water or reuse of water.

(b) As used in this article, “misuse of water” or “misuse” means any waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water.

Reference: Sections 100, 275, 1240, 1251, 1253 and 1257, Water Code; and Section 2, Article X, California Constitution.

~~§ 956. Divided Interests. [Renumbered]~~

~~§ 856.~~§ 956. Investigations.

The board staff shall investigate an allegation of misuse of water:

- (1) when an interested person shows good cause, or
- (2) when the board itself believes that a misuse may exist.

Authority cited: Section 1058, Water Code.

Reference: Sections 100, 183, 275 and 1051, Water Code; and Section 2, Article X, California Constitution.

~~§ 957. Undivided Interests. [Renumbered]~~

~~§ 857.~~§ 957. Notifications, Hearings and Orders.

(a) If the investigation indicates that a misuse of water has occurred, the board staff shall notify interested persons and allow a reasonable period of time in which to terminate such misuse or demonstrate to the satisfaction of the board staff that misuse has not occurred.

(b) At the end of the time set by the board staff, and upon application of any interested person or upon its own motion, the board may hold a hearing to determine if misuse has occurred or continues to occur.

- (c) If the misuse is alleged to have occurred or to continue to occur in connection with exercise of rights evidenced by a permit or license issued by the board, the board shall notice the hearing as a permit revocation hearing pursuant to Water Code Section 1410.1, or as a license revocation hearing pursuant to Water Code Section 1675.1, as appropriate; or as a preliminary cease and desist order hearing pursuant to Water Code Section 1834.
- (d) The board may issue an order requiring prevention or termination thereof.

Authority cited: Section 1058, Water Code.

Reference: Sections 100, 275, 183, 1051, 1401, 1675.1 and 1834, Water Code.

~~§ 958. General Requirements for Proofs of Claims. [Repealed]~~

~~§ 858. § 958. Noncompliance with Order Regarding Misuse Under Water Right Entitlement.~~

If a permittee or licensee does not comply with any order issued pursuant to Section ~~857957~~ within such reasonable period of time as allowed by the board, or such extension thereof as may for good cause be allowed by the board, and if such order includes a finding that waste, unreasonable use, method of use, or method of diversion has occurred in connection with exercise of a right evidenced by a permit or license issued by the board, a revocation action may be commenced by the board:

- (a) If the hearing has been noticed as a permit or license revocation hearing, and if the board finds that misuse has occurred or continues to occur, the board may order the permit or license revoked or impose appropriate additional or amended terms or conditions on the entitlement to prevent recurrence of the misuse;
- (b) If the hearing pursuant to Section ~~857957~~ has been noticed as a preliminary cease and desist order hearing, and if the board finds that misuse has occurred or continues to occur, the board may issue a preliminary cease and desist order.

Authority cited: Section 1058, Water Code.

Reference: Sections 1410, 1675 and 1831, Water Code.

~~§ 959. Specific Requirements for Irrigation Proofs. [Repealed]~~

~~§ 859. § 959. Noncompliance with Other Order.~~

If a person other than a permittee or licensee does not comply with any order issued pursuant to Section ~~857957~~ within such reasonable period of time as allowed by the board, or such extension thereof as may for good cause be allowed, and if such order includes a finding that such person has misused or continues to misuse water, the board may request appropriate legal action by the Attorney General.

Authority cited: Section 1058, Water Code.

Reference: Section 275, Water Code.

~~§ 960. Uses Other than Irrigation. [Repealed]~~

~~§ 860. § 960. Alternative Procedure.~~

The procedure established in this article shall be construed as alternative to, and not exclusive of, the procedures established in Chapter 5 of Title 23, California Administrative Code, in accordance with Section 4007 therein.

Authority cited: Section 1058, Water Code.

Reference: Section 275, Water Code.

~~§ 961. Signature of Deponent. [Renumbered]~~

~~§ 962. Objections. [Renumbered]~~

~~§ 862.~~ ~~§ 962.~~ Russian River, Special.

Budding grape vines and certain other crops in the Russian River watershed may be severely damaged by spring frosts. Frost protection of crops is a beneficial use of water under section 671 of ~~this chapter~~ 2 of this division. During a frost, however, the high instantaneous demand for water for frost protection by numerous vineyardists and other water users may contribute to a rapid decrease in stream stage that results in the mortality of salmonids due to stranding. Stranding mortality can be avoided by coordinating or otherwise managing diversions to reduce instantaneous demand. Because a reasonable alternative to current practices exists, the Board has determined these diversions must be conducted in accordance with this section.

(a) After March 14, 2012, except for diversion upstream of Warm Springs Dam in Sonoma County or Coyote Dam in Mendocino County, any diversion of water from the Russian River stream system, including the pumping of hydraulically connected groundwater, for purposes of frost protection from March 15 through May 15, shall be diverted in accordance with a board approved water demand management program (WDMP). For purposes of this section, groundwater pumped within the Russian River watershed is considered hydraulically connected to the Russian River stream system if that pumping contributes to a reduction in stream stage to any surface stream in the Russian River watershed during any single frost event.

(b) The purpose of the WDMP is to assess the extent to which diversions for frost protection affect stream stage and manage diversions to prevent cumulative diversions for frost protection from causing a reduction in stream stage that causes stranding mortality. The WDMP, and any revisions thereto, shall be administered by an individual or governing body (governing body) capable of ensuring that the requirements of the program are met. Any WDMP developed pursuant to this section shall be submitted to the board by February 1 prior to the frost season.

(c) At a minimum, the WDMP shall include (1) an inventory of the frost diversion systems within the area subject to the WDMP, (2) a stream stage monitoring program, (3) an assessment of the potential risk of stranding mortality due to frost diversions, (4) the identification and timelines for implementation of any corrective actions necessary to prevent stranding mortality caused by frost diversions, and (5) annual reporting of

program data, activities, and results. In addition, the WDMP shall identify the diverters participating in the program and any known diverters within the area subject to the WDMP who declined to participate. The WDMP also shall include a schedule for conducting the frost inventory, developing and implementing the stream stage monitoring program, and conducting the risk assessment.

(1) Inventory of frost diversion systems: The governing body shall establish an inventory of all frost diversions included in the WDMP. The inventory, except for diversion data, shall be completed within three months after board approval of a WDMP. The inventory shall be updated annually with any changes to the inventory and with frost diversion data. The inventory shall include for each frost diversion:

- (A) Name of the diverter;
- (B) Source of water used and location of diversion;
- (C) A description of the diversion system and its capacity;
- (D) Acreage frost protected and acres frost protected by means other than water diverted from the Russian River stream system; and
- (E) The rate of diversion, hours of operation, and volume of water diverted during each frost event for the year.

(2) Stream stage monitoring program: The governing body shall develop a stream stage monitoring program in consultation with National Marine Fisheries Service (NMFS) and California Department of Fish and Game (DFG). For the purposes of this section, consultation involves an open exchange of information for the purposes of obtaining recommendations. The governing body is authorized to include its own expert scientists and engineers in the consultation, and request board staff to participate, when desired.

The stream stage monitoring program shall include the following:

- (A) A determination of the number, type, and location of stream gages necessary for the WDMP to monitor and assess the extent to which frost diversions may affect stream stage and cause stranding mortality;
- (B) A determination of the stream stage that should be maintained at each page to prevent stranding mortality;
- (C) Provisions for the installation and ongoing calibration and maintenance of stream gages; and
- (D) Monitoring and recording of stream stage at intervals not to exceed 15 minutes.

(3) Risk assessment: Based on the inventory and stream stage information described above, and information regarding the presence of habitat for salmonids, the governing body shall conduct a risk assessment that evaluates the potential for frost diversions to cause stranding mortality. The risk assessment shall be conducted in consultation with NMFS and DFG. The governing body is authorized to include its own expert scientists and engineers in the consultation, and request board staff to participate, when desired. The risk assessment shall be evaluated and updated annually.

(4) Corrective Actions: If the governing body determines that diversions for purposes of frost protection have the potential to cause stranding mortality, the governing body shall notify the diverter(s) of the potential risk. The governing body, in consultation with the diverters, shall develop a corrective action plan that will prevent stranding mortality. Corrective actions may include alternative methods for frost protection, best management practices, better coordination of diversions, construction of offstream storage facilities,

real-time stream gage and diversion monitoring, or other alternative methods of diversion. Corrective actions also may include revisions to the number, location and type of stream stage monitoring pages, or to the stream stages considered necessary to prevent stranding mortality. In developing the corrective action plan the governing body shall consider the relative water right priorities of the diverters and any time delay between groundwater diversions and a reduction in stream stage. The corrective action plan shall include a schedule of implementation. To the extent feasible, the corrective action plan shall include interim corrective actions if long-term corrective actions are anticipated to take over three years to fully implement. The diverters shall implement corrective actions in accordance with the corrective action plan, or cease diverting water for frost protection.

(5) Annual Reporting: The governing body shall submit a publically available annual report of program operations, risk assessment, and corrective actions by September 1 following the frost season that is the subject of the report. The report shall include:

- (A) The frost inventory, including diversion data.
- (B) Stream stage monitoring data.
- (C) The risk assessment and its results, identification of the need for any additional data or analysis, and a schedule for obtaining the data or completing the analysis.
- (D) A description of any corrective action plan that has been developed, any corrective actions implemented to date, and a schedule for implementing any additional corrective actions.
- (E) Any instances of noncompliance with the WDMP or with a corrective action plan, including the failure to implement identified corrective actions. The report shall document consultations with DFG and NMFS regarding the stream stage monitoring program and risk assessment and shall explain any deviations from recommendations made by DFG or NMFS during the consultation process. In addition, the annual report shall evaluate the effectiveness of the WDMP and recommend any necessary changes to the WDMP, including any proposed additions or subtractions of program participants. Any recommendations for revisions to the WDMP shall include a program implementation plan and schedule. The board may require changes to the WDMP, including but not limited to the risk assessment, corrective action plan, and schedule of implementation, at any time.

(d) The governing body may develop and submit for the Deputy Director for Water Rights' approval, criteria, applicable to any participant in its WDMP, for identifying groundwater diversions that are not hydraulically connected to the Russian River stream system. The governing body may submit to the Deputy Director a list of groundwater diverters that appear to meet these criteria and could be exempted from this section. The Deputy Director is authorized to exempt the listed groundwater diverters, or identify the reason for not exempting the listed groundwater diverters. Beginning three years from the effective date of this section, if an individual groundwater diverter can independently demonstrate to the satisfaction of the Deputy Director that the diversion is not hydraulically connected to the Russian River stream system, the Deputy Director is authorized to exempt the groundwater diverter from this section.

(e) Compliance with this section shall constitute a condition of all water right permits and licenses that authorize the diversion of water from the Russian River stream system for purposes of frost protection. The diversion of water in violation of this section, including the failure to implement the corrective actions included in any corrective action plan developed by the governing body, is an unreasonable method of diversion and use and a violation of Water Code section 100, and shall be subject to enforcement by the board. The board has continuing authority to revise terms and conditions of all permits and licenses that authorize the diversion of water for purposes of frost protection should future conditions warrant.

Authority cited: Section 1058, Water Code.

Reference: Section 2, Article X, California Constitution; and Sections 100, 275 and 1051.5, Water Code.

Article 2. Wasteful and Unreasonable Water Uses Water Conservation

§ 963. ~~Wasteful and Unreasonable Water Use Practices.~~ End User Requirements in Promotion of Water Conservation

The State Water Resources Control Board (State Board) has determined that the end-user water use prohibitions and requirements set forth in this section are conservation measures that further the purpose of Article X, section 2 of the California Constitution that water resources of the State be put to beneficial use in a manner that is reasonable and not wasteful. This regulation shall not be used in any future administrative or judicial proceedings as evidence or findings of waste and unreasonable use of any individual water user or water supplier subject to this regulation, and is not to affect or otherwise limit any rights to water conserved under applicable law, including without limitation, water conserved consistent with Water Code section 1011.

~~The State Water Resources Control Board (State Board) has determined that it is a waste and unreasonable use of water under Article X, section 2 of the California Constitution to divert or use water inconsistent with subdivision (a) regardless of water right seniority, given the need for the water to support other more critical uses.~~

(a) As used in this article:

(1) “Commercial agricultural use meeting the definition of Government Code section 51201, subdivision (b)” includes irrigation, frost protection and heat control, but does not include cleaning, processing or other similar post-harvest activities.

(2) “Total potable water production” means all potable water that enters into a water supplier’s distribution system, excluding water placed into storage and not withdrawn for use during the reporting period, or water exported outside the supplier’s service area.

(3) “Urban water supplier” means a supplier that meets the definition set forth in Water Code section 10617, except it does not refer to suppliers when they are functioning solely in a wholesale capacity, but does apply to suppliers when they are functioning in a retail capacity.

(4) “Water year” means the period from October 1 through the following September 30. Where a water year is designated by year number, the designation is by the calendar year

number in which the water year ends.

(b)(1) ~~To promote water conservation,~~ the use of water is prohibited as identified in this subdivision for any of the following actions:

(A) The application of water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;

(B)The use of a hose that dispenses water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;

(C)The application of potable water directly to driveways and sidewalks;

(D) The use of potable water in an ornamental fountain or other decorative water feature, except where the water is part of a recirculating system;

(E) The application of water to irrigate turf and ornamental landscapes during and within 48 hours after measurable rainfall of at least one-tenth of one inch of rain. In determining whether measurable rainfall of at least one-tenth of one inch of rain occurred in a given area, enforcement may be based on records of the National Weather Service, the closest CIMIS station to the parcel, or any other reliable source of rainfall data available to the entity undertaking enforcement of this subdivision;

(F) The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased; (G) The irrigation of turf on public street medians or publicly owned or maintained landscaped areas between the street and sidewalk, except where the turf serves a community or neighborhood function; and

(2) Notwithstanding subdivision (b)(1), the use of water is not prohibited by this article under the following circumstances:

(A)To the extent necessary to address an immediate health and safety need. This may include, but is not limited to, street sweeping and pressure washing of public sidewalks and the use of potable water in a fountain or water feature when required by law to be potable.

(B)To the extent necessary to comply with a term or condition in a permit issued by a state or federal agency.

(C)When the water is used exclusively for commercial agricultural use meeting the definition of Government Code section 51201, subdivision (b).

(c) To promote water conservation, operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

(d)(1) To ~~prevent the waste and unreasonable use of water and to~~ promote water conservation, any homeowners' association or community service organization or similar entity is prohibited from:

(A) Taking or threatening to take any action to enforce any provision of the governing documents or architectural or landscaping guidelines or policies of a common interest development where that provision is void or unenforceable

under section 4735, subdivisions (a) and (b) of the Civil Code;
(B) Imposing or threatening to impose a fine, assessment, or other monetary penalty against any owner of a separate interest for reducing or eliminating the watering of vegetation or lawns during a declared drought emergency, as described in section 4735, subdivision (c) of the Civil Code; or
(C) Requiring an owner of a separate interest upon which water-efficient landscaping measures have been installed in response to a declared drought emergency, as described in section 4735, subdivisions (c) and (d) of the Civil Code, to reverse or remove the water-efficient landscaping measures upon the conclusion of the state of emergency.

(2) As used in this subdivision:

(A) “Architectural or landscaping guidelines or policies” includes any formal or informal rules other than the governing documents of a common interest development.

(B) “Homeowners’ association” means an “association” as defined in section 4080 of the Civil Code.

(C) “Common interest development” has the same meaning as in section 4100 of the Civil Code.

(D) “Community service organization or similar entity” has the same meaning as in section 4110 of the Civil Code.

(E) “Governing documents” has the same meaning as in section 4150 of the Civil Code.

(F) “Separate interest” has the same meaning as in section 4185 of the Civil Code.

(3) If a disciplinary proceeding or other proceeding to enforce a rule in violation of subdivision (d)(1) is initiated, each day the proceeding remains pending shall constitute a separate violation of this regulation.

(e) To ~~prevent the waste and unreasonable use of water and to~~ promote water conservation, any city, county, or city and county is prohibited from imposing a fine under any local maintenance ordinance or other relevant ordinance as prohibited by section 8627.7 of the Government Code.

(f) The taking of any action prohibited in subdivision (b) (d) or (e), or the failure to take any action required in subdivision (c), is an infraction punishable by a fine of up to five hundred dollars (\$500) for each day in which the violation occurs. The fine for the infraction is in addition to, and does not supersede or limit, any other remedies, civil or criminal.

(g) A decision or order issued under this article by the Board or an officer or employee of the Board is subject to reconsideration under article 2 (commencing with section 1122) of chapter 4 of part 1 of division 2 of the Water Code.

Authority: Section 1058, Water Code.

References: Article X, Section 2, California Constitution; Sections 4080, 4100, 4110, 4150, 4185, and 4735, Civil Code; Sections 102, 104, 105, 275, 350, and 10617, Water

ATTACHMENT A

LSJRS.D.0064

Code; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463.

EXHIBIT 2

PUBLIC UTILITIES COMMISSION

City and County of San Francisco

RESOLUTION NO. 08-0200

WHEREAS, the San Francisco Public Utilities Commission approved and adopted a Long-Term Strategic Plan for Capital Improvements, a Long-Range Financial Plan, and a Capital Improvement Program on May 28, 2002 under Resolution No. 02-0101; and

WHEREAS, the San Francisco Public Utilities Commission determined the need for the Water System Improvement Program (WSIP) to address water system deficiencies including aging infrastructure, exposure to seismic and other hazards, maintaining water quality, improving asset management and delivery reliability, and meeting customer demands; and

WHEREAS, Propositions A and E passed in November 2002 by San Francisco voters and Assembly Bill No. 1823 was also approved in 2002 requiring the City and County of San Francisco to adopt a capital improvement program designed to restore and improve the regional water system; and

WHEREAS, the San Francisco Public Utilities Commission staff developed a variant to the WSIP referred to as the Phased WSIP; and

WHEREAS, the two fundamental principles of the program are 1) maintaining a clean, unfiltered water source from the Hetch Hetchy system, and 2) maintaining a gravity-driven system; and

WHEREAS, the overall goals of the Phased WSIP for the regional water system include 1) Maintaining high-quality water and a gravity-driven system, 2) Reducing vulnerability to earthquakes, 3) Increasing delivery reliability, 4) Meeting customer water supply needs, 5) Enhancing sustainability, and 6) Achieving a cost-effective, fully operational system; and

WHEREAS, on October 30, 2008, the Planning Commission reviewed and considered the Final Program Environmental Impact Report (PEIR) in Planning Department File No. 2005.0159E, consisting of the Draft PEIR and the Comments and Responses document, and found that the contents of said report and the procedures through which the Final PEIR was prepared, publicized and reviewed complied with the provisions of the California Environmental Quality Act (CEQA), the CEQA Guidelines and Chapter 31 of the San Francisco Administrative Code ("Chapter 31") and found further that the Final PEIR reflects the independent judgment and analysis of the City and County of San Francisco, is adequate, accurate and objective, and that the Comments and Responses document contains no significant revisions to the Draft PEIR, and certified the completion of said Final PEIR in compliance with CEQA, the CEQA Guidelines and Chapter 31 in its Motion No. 17743; and

WHEREAS, this Commission has reviewed and considered the information contained in the Final PEIR, all written and oral information provided by the Planning

Department, the public, relevant public agencies, SFPUC and other experts and the administrative files for the WSIP and the PEIR; and

WHEREAS, the WSIP and Final PEIR files have been made available for review by the San Francisco Public Utilities Commission and the public, and those files are part of the record before this Commission; and

WHEREAS, San Francisco Public Utilities Commission staff prepared proposed findings, as required by CEQA, (CEQA Findings) and a proposed Mitigation, Monitoring and Reporting Program (MMRP), which material was made available to the public and the Commission for the Commission's review, consideration and action; and

WHEREAS, the Phased WSIP includes the following program elements: 1) full implementation of all WSIP facility improvement projects; 2) water supply delivery to regional water system customers through 2018; 3) water supply sources (265 million gallons per day (mgd) average annual from SFPUC watersheds, 10 mgd conservation, recycled water, groundwater in San Francisco, and 10 mgd conservation, recycled water, groundwater in the wholesale service area); 4) dry-year water transfers coupled with the Westside Groundwater Basin Conjunctive Use project to ensure drought reliability; 5) re-evaluation of 2030 demand projections, regional water system purchase requests, and water supply options by 2018 and a separate SFPUC decision by 2018 regarding water deliveries after 2018; and, 6) provision of financial incentives to limit water sales to an average annual 265 mgd from the SFPUC watersheds through 2018; and

WHEREAS, the SFPUC staff has recommended that this Commission make a water supply decision only through 2018, limiting water sales from the SFPUC watersheds to an average annual of 265 mgd; and

WHEREAS, before 2018, the SFPUC would engage in a new planning process to re-evaluate water system demands and water supply options. As part of the process, the City would conduct additional environmental studies and CEQA review as appropriate to address the SFPUC's recommendation regarding water supply and proposed water system deliveries after 2018; and

WHEREAS, by 2018, this Commission will consider and evaluate a long-term water supply decision that contemplates deliveries beyond 2018 through a public process; and

WHEREAS, the SFPUC must consider current needs as well as possible future changes, and design a system that achieves a balance among the numerous objectives, functions and risks a water supplier must face, including possible increased demand in the future; now, therefore, be it

RESOLVED, this Commission hereby adopts the CEQA Findings, including the Statement of Overriding Considerations, attached to this Resolution as Attachment A and incorporated herein as part of this Resolution by this reference thereto, and adopts the Mitigation Monitoring and Reporting Program attached to this Resolution as Attachment B and incorporated herein as part of this Resolution by this reference thereto; and, be it

FURTHER RESOLVED, this Commission hereby approves a water system improvement program that would limit sales to an average annual of 265 mgd from the watersheds through 2018, and the SFPUC and the wholesale customers would

collectively develop 20 mgd in conservation, recycled water, and groundwater to meet demand in 2018, which includes 10 mgd of conservation, recycled water, and groundwater to be developed by the SFPUC in San Francisco, and 10 mgd to be developed by the wholesale customers in the wholesale service area; and, be it

FURTHER RESOLVED, the San Francisco Public Utilities Commission shall set aggressive water conservation and recycling goals, shall bring short and long-term conservation, recycling, and groundwater programs on line at the earliest possible time, and shall undertake every effort to reduce demand and any further diversion from the San Francisco Public Utilities Commission watersheds; and, be it

FURTHER RESOLVED, San Francisco Public utilities Commission staff shall provide ongoing updates to this Commission about the progress and development of conservation, recycling, and groundwater programs, and shall provide annual figures and projections for water system demands and sales, and provide water supply options; and, be it

FURTHER RESOLVED, As part of the Phased WSIP, this Commission hereby approves implementation of delivery and drought reliability elements of the WSIP, including dry-year water transfers coupled with the Westside Groundwater Basin Conjunctive Use project, which meets the drought-year goal of limiting rationing to no more than 20 percent on a system-wide basis; and, be it

FURTHER RESOLVED, This Commission hereby approves the Phased Water System Improvement Program, which includes seismic and delivery reliability goals that apply to the design of system components to improve seismic and water delivery reliability, meet current and future water quality regulations, provide for additional system conveyance for maintenance and meet water supply reliability goals for year 2018 and possibly beyond; and, be it

FURTHER RESOLVED, This Commission hereby approves the following goals and objectives for the Phased Water System Improvement Program:

Phased WSIP GOALS AND OBJECTIVES

Program Goal	System Performance Objective
Water Quality – <i>maintain high water quality</i>	<ul style="list-style-type: none"> • Design improvements to meet current and foreseeable future federal and state water quality requirements. • Provide clean, unfiltered water originating from Hetch Hetchy Reservoir and filtered water from local watersheds. • Continue to implement watershed protection measures.

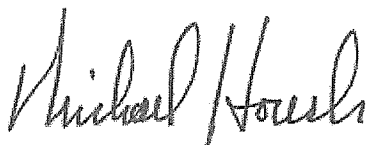
Program Goal	System Performance Objective
<i>Seismic Reliability – reduce vulnerability to earthquakes</i>	<ul style="list-style-type: none"> • Design improvements to meet current seismic standards. • Deliver basic service to the three regions in the service area (East/South Bay, Peninsula, and San Francisco) within 24 hours after a major earthquake. Basic service is defined as average winter-month usage, and the performance objective for design of the regional system is 229 mgd. The performance objective is to provide delivery to at least 70 percent of the turnouts in each region, with 104, 44, and 81 mgd delivered to the East/South Bay, Peninsula, and San Francisco, respectively. • Restore facilities to meet average-day demand of up to 300 mgd within 30 days after a major earthquake.
<i>Delivery Reliability – increase delivery reliability and improve ability to maintain the system</i>	<ul style="list-style-type: none"> • Provide operational flexibility to allow planned maintenance shutdown of individual facilities without interrupting customer service. • Provide operational flexibility to minimize the risk of service interruption due to unplanned facility upsets or outages. • Provide operational flexibility and system capacity to replenish local reservoirs as needed. • Meet the estimated average annual demand of up to 300 mgd under the conditions of one planned shutdown of a major facility for maintenance concurrent with one unplanned facility outage due to a natural disaster, emergency, or facility failure/upset.
<i>Water Supply – meet customer water needs in non-drought and drought periods</i>	<ul style="list-style-type: none"> • Meet average annual water demand of 265 mgd from the SFPUC watersheds for retail and wholesale customers during non -drought years for system demands through 2018. • Meet dry-year delivery needs through 2018 while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts. • Diversify water supply options during non-drought and drought periods. • Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.
<i>Sustainability – enhance sustainability in all system activities</i>	<ul style="list-style-type: none"> • Manage natural resources and physical systems to protect watershed ecosystems. • Meet, at a minimum, all current and anticipated legal requirements for protection of fish and wildlife habitat. • Manage natural resources and physical systems to protect public health and safety
<i>Cost-effectiveness – achieve a cost-effective, fully operational system</i>	<ul style="list-style-type: none"> • Ensure cost-effective use of funds. • Maintain gravity-driven system. • Implement regular inspection and maintenance program for all facilities.

And, be it

FURTHER RESOLVED, This Commission authorizes and directs SFPUC staff to

design and develop WSIP facility improvement projects consistent with the Phased WSIP Goals and Objectives.

I hereby certify that the foregoing resolution was adopted by the Public Utilities Commission at its meeting of October 30, 2008

A handwritten signature in cursive script, appearing to read "Michael Housh".

Secretary, Public Utilities Commission

EXHIBIT 3



July 26, 2018

Subject: SFPUC Comments on Impact Analysis Methodology

Prepared by: Matt Moses, Water Resources Engineer

In its July 6, 2018 response to comments submitted by the San Francisco Public Utilities Commission (SFPUC) on the Draft Substitute Environmental Document (SED) for the proposed amendment to the Bay-Delta Water Quality Control Plan (Plan Amendment), the State Water Resources Control Board (SWRCB) does not incorporate the SFPUC's analysis of water supply impacts to the Hetch Hetchy Regional Water System that would be caused by implementation of the Plan Amendment. This memo explains several flaws in the analysis of water supply impacts to San Francisco that have not been addressed, and therefore remain included in the Final Substitute Environmental Document (Final SED).

1. SWRCB Ignored San Francisco's Dry-Year Management Operations

Although the SFPUC explained its water supply planning methodology, including use of the SFPUC's eight-and-a-half-year design drought (design drought), and submitted appropriate base case estimates of water supply shortage at several levels of system demand with its March 2017 comments on the Plan Amendment and Draft SED, the SWRCB failed to incorporate any of this information into the analysis of water supply impacts to San Francisco in the Final SED. Instead, the SWRCB's analysis of potential impacts to the SFPUC regional water supply in the Final SED relies on an estimate of "baseline" or historical water bank account balance from the period of water years 1982 through 2003. The baseline was used for comparison to the Lower San Joaquin River ("LSJR") alternatives, to estimate the effects of the LSJR alternatives. The use of the historical water bank account balance as the baseline for an analysis of future conditions ignores an important aspect of SFPUC water supply operations: that lessons learned during the 1987 – 1992 drought have been incorporated into modern operational practices. This means that the SWRCB's baseline for impact analysis does not reflect the current dry-year water management operations of SFPUC, including the use of the design drought in water supply planning.

In the Final SED analysis, the SFPUC's contribution to the proposed increased flow requirements was calculated and then subtracted from the historical baseline to estimate a simulated water bank balance

for each of the LSJR alternatives. The SWRCB only considered water bank balance values calculated to be less than zero as water supply impacts to SFPUC water supply. This method of defining an adverse impact on SFPUC water supply is not based on SFPUC practices or explained logically in the SWRCB's analysis. The SWRCB's arbitrary use of water bank account balances that are less than zero to define impacts to SFPUC does not reflect actual water management operations.

The SWRCB's analysis identifies several years in the period from 1982 through 2003 in which SFPUC water supply would be reduced, but in which the estimated water bank account balance would be greater than zero. These effects are not identified as impacts in the SWRCB's analysis because they do not meet the SWRCB's arbitrarily selected criterion, i.e., that the water bank account balance is reduced to zero. In fact, the SWRCB explains in the Final SED that SFPUC water supply would not be affected by the proposed LSJR alternatives except in 6-year droughts.¹

The water supply impacts analysis included in the SFPUC's March 2017 comments incorporated the SFPUC's water supply planning methodology. The SFPUC's analysis identified 1987, 1994 and 2002 as additional years that fall within the period covered by the SWRCB's water bank analysis, i.e., between 1982 and 2003, in which SFPUC water supply impacts would require system-wide rationing or other means of supply.² Multiple additional years in which SFPUC would experience water supply impacts due to the LSJR alternative flow schedules are also identified in the SFPUC analysis; these are years within the period considered in the SWRCB's Water Supply Effects model. SFPUC provided these results in its 2017 comments, along with a description of SFPUC's water supply planning methodology. As noted, the SFPUC estimates were not incorporated into the Final SED.

2. SWRCB Incorrectly Applies 57.1% to calculate San Francisco's Flow Contribution under the Fourth Agreement.

SFPUC's 2017 comments on the Draft SED are discussed in Master Response 8.5 of the Final SED. The SWRCB references the similarity in the SFPUC's and the SWRCB's respective estimates of water supply shortages for the 6-year drought period from 1987 – 1992 in an apparent effort to demonstrate that the SWRCB's methodology is appropriate. The values presented in Table 8.5-2 do appear similar, especially given that the SWRCB's analysis does not assign any water supply impact in 1987, the first year of the 6-year drought. Review of the calculations used in the SWRCB's analysis, however, explains how the SWRCB calculated a very similar 6-year average impact while only counting impacts in 5 years: the share of flow assigned to the SFPUC is incorrectly estimated as 57.1% of the increased flow requirement. As noted in the text explaining the SWRCB's analysis, 51.7% of the increase should be assigned to SFPUC.³ This appears to be a simple typographical error in the spreadsheet the SWRCB used in its analysis (see CCSF Analysis V16_WA.xls, FERC_reqs tab, columns R, T and V). As applied, this typographical error causes additional responsibility to be assigned to SFPUC to meet the LSJR alternative flow schedules on the Tuolumne River. This typo, when combined with the assumption that SFPUC would not be impacted until the water bank account balance is reduced to zero, created offsetting errors that produced an estimate of average 6-year impacts that was approximately the same as the SFPUC's estimate. In other words, the impacts are not counted early enough in a drought sequence, but then they are over-estimated once the count begins. This coincidence in which two problems with the analysis combine to produce a reasonable answer when averaged over 6 years does not demonstrate that the analysis is sound. It remains true that the SWRCB's analysis does not identify all years in which SFPUC water supply would be negatively impacted by the

¹ See Master Response 8.5 at 13 (where SWRCB states "the only time SFPUC's water supply would be affected is during the 6-year drought between 1987 and 1992.").

² Although the SWRCB includes 1987-88 in their description of the 6-year drought, the SWRCB's analysis does not assign any impacts to San Francisco during that year because of its methodology.

³ Appendix L at L-14.

proposed alternative flow schedules, *e.g.*, shorter dry periods in which the SFPUC experiences water supply shortages are not captured by the SWRCB's modeling.

3. SWRCB Mistakenly Construes the SFPUC's Conservation Efforts during the Recent Drought as Sufficient Demand Reduction to Avoid Increased Rationing Under the Plan Amendment.

One additional point in Master Response 8.5 deserves comment here: The discussion on page 49 of water supply shortage in the SFPUC system in response to the alternative flow proposals seems to misconstrue the analysis that was provided by SFPUC. In the SFPUC analysis, a system demand of 175 million gallons per day (MGD) was evaluated. As explained by SFPUC (and re-iterated on p. 10 of the master response), that level of demand is equivalent to the delivery to the service area during the recent drought, and reflects voluntary and state-mandated conservation efforts. This level of water delivery represents a reduction of approximately 22% from the system delivery just prior to the drought conservation efforts. In SFPUC analysis of the flow proposals at an assumed system demand of 175 MGD, all indicated water supply shortage would be in addition to the 22% conservation effort. This means that the 20% to 32% levels of shortage cited on page 49 of the master response, plus the 22% reduction inherent in the 175 MGD system demand assumption would amount to a total water supply shortage of approximately 40% to 50% of the total system demand. The discussion on page 49 seems to equate the recent conservation efforts to the additional water supply shortage estimated for the alternative. It is not a good assumption that voluntary conservation actions could achieve the level of demand reduction needed to meet the 40% unimpaired flow alternative.



Matt Moses

EXHIBIT 4

MEMORANDUM

TO: San Francisco Public Utilities Commission

FROM: David Sunding, Thomas J. Graff Professor in the College of Natural Resources and Chair of the Department of Agricultural & Resource Economics at the University of California, Berkeley, and a principal at The Brattle Group, Inc.

DATE: July 26, 2018

RE: State Water Resources Control Board July 6, 2018 Response to Comments on the Final Substitute Environmental Document for the Proposed Amendment of the Water Quality Control Plan for the San Francisco Bay/Sacramento – San Joaquin Delta Estuary

In its July 6, 2018 response to comments submitted by the San Francisco Public Utilities Commission (SFPUC) on the Final Substitute Environmental Document for the proposed amendment to the Bay-Delta Water Quality Control Plan (Plan Amendment), the State Water Resources Control Board (SWRCB) critiques the methodology of the socioeconomic studies The Brattle Group prepared in 2014 and 2017 for the SFPUC.

The SWRCB criticizes The Brattle Group's use of the commercial/industrial/institutional employment and output multipliers from the MHB Consultants' 1994 study ("MHB Study"), arguing that the study is outdated. But the MHB Study is the best available evidence of its kind and is an appropriate basis for The Brattle Group's analysis. Indeed, the report is a standard reference commonly utilized by water agencies and consultants when analyzing planning and resource allocation decisions.¹ We agree that it would be worthwhile to update the results of the MHB Study; perhaps the SWRCB would consider sponsoring such research. But until that occurs, the simple fact is that the MHB Study remains the best information currently available on the output and employment responses to commercial and industrial water shortages in the Bay Area.

Additionally, the SWRCB asserts that the results of the MHB Study are biased as a result of what the SWRCB believes to be a low response rate, and because the survey of commercial and industrial businesses came shortly after a six-year drought period in the region. The MHB survey

¹ For examples of recent studies utilizing the MHB Consultants' 1994 shortage impact estimates, see East Bay Municipal Utility District, *Water Supply Management Program 2040 Economic Analysis*, 2008; Santa Clara Valley Water District, *Report Documenting the Reasonableness of the Conjunctive Use Benefit of Treated Water to Groundwater and Surface Water Customers and the Benefit of Agriculture Customers to Municipal and Industrial Customers*, 2011; TXP, *The Economic Impact of Potential Water Shortages on San Antonio's Economy*, 2014.

response rates were 30% and 13% for the industrial and commercial sectors, respectively. Such response rates are in fact typical of mail surveys that routinely appear in the scientific literature.² The MHB Study also notes that its response rate is comparable to a similar study performed in 1991 by Spectrum Economics.³ With respect to the survey date, the SWRCB offers no data or analysis to support its assertion that administering the survey after the end of the 1987-1992 drought biases the results. To the contrary, it is actually preferable when conducting survey research to query survey respondents about issues or behaviors with which they are familiar; in many cases, it is recommended to ask respondents to recall actions they took within the previous day or week.⁴

The Board appears to suggest that the economic input-output model referred to as IMPLAN is a more appropriate tool for assessing economic impacts to San Francisco than the model developed by The Brattle Group. Although use of IMPLAN may be appropriate to assess rate impacts associated with identified costs, such as the cost of constructing a large-scale desalination plant, it is less useful for determining economic impacts associated with increased water supply rationing. This is precisely why The Brattle Group developed an econometric model for the SFPUC.

In its 2014 and 2017 socioeconomic reports, The Brattle Group forecasted future water demands and measured the welfare effects of water shortages by estimating sectoral water demand relationships for San Francisco and the 26 wholesale customers throughout the Bay Area that rely on the Hetch Hetchy Regional Water System (“RWS”). This detailed approach captures important differences in demand and the willingness to pay for water across water agencies. The estimated econometric models successfully explain sector-specific water consumption as a function of covariates such as water rates, household income, population density, and local climatic conditions. Moreover, such econometric models have the advantage of being based on the actual choices of retail water users. For all of these reasons, the scientific literature supports the approach we used in our 2014 and 2017 reports to measure the welfare effects of urban water shortages.⁵

² Fox, R., M. Crask and J. Kim, “Mail Survey Response Rate: A Meta-Analysis of Selected Techniques for Inducing Response,” *Public Opinion Quarterly*, vol. 52, 1988, pp. 467-491.

³ MHB Consultants, Inc., “The Economic Impact of Water Delivery Reductions on the San Francisco Water Department’s Commercial and Manufacturing Customers,” 1994, p. 22.

⁴ See, for example, Kahneman, D. et al. “A Survey Method for Characterizing Daily Life Experience: The Day Reconstruction Method,” *Science*, vol. 306, 2004, pp. 1776-1780.

⁵ Buck, S., M. Auffhammer, S. Hamilton and D. Sunding, “Measuring Welfare Losses from Urban Water Supply Disruptions,” *Journal of the Association of Environmental and Resource Economists* 3(2016), pp. 743-778; see also Brozovic, N., D. Sunding and D. Zilberman, “Estimating Business and Residential Water Supply Interruption Losses from Catastrophic Events,” *Water Resources Research* 43(2007), pp. 321-448; Mansur, E. and S. Olmstead, “The Value of Scarce Water: Measuring the Efficiency of Municipal Regulations,” *Journal of Urban Economics* 71(2012), pp. 332-346; Grafton, P. and M. Ward,

Finally, the Board continues to assert that the SFPUC and the Tuolumne River irrigation districts would be able to implement a water transfer of sufficient size to eliminate any water shortages—and the accompanying socioeconomic impacts—in the RWS service area that would otherwise result from the Plan Amendment. The Board’s economic analysis continues to rest solely on this assumption. By simply asserting that the SFPUC will be able to purchase water from the Turlock Irrigation District and the Modesto Irrigation District during times of water shortages,⁶ the SWRCB ignores entirely the water supply problems that would be created by the Plan Amendment’s instream flow requirements. While water transfers among the Tuolumne River water agencies may be physically possible, there is no guarantee that they will occur in the future as a practical matter. Indeed, the water transfer market in California is far from perfect or competitive, and many potential transfers may look attractive in theory but are never implemented due to a host of political, technical, or legal reasons. Thus, the Board’s economic analysis is fatally flawed because it rests on this unrealistic assumption that the SFPUC will be able to purchase sufficient water supplies from Central Valley water districts during drought periods to offset serious economic impacts.



David L. Sunding

“Prices versus Rationing: Marshallian Surplus and Mandatory Water Restrictions,” *Economic Record* 84(2008), pp. 57-65.

⁶ State Water Board, “Appendix L,” July 6, 2018, p. L-26. Accessed July 18, 2018, https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2018_sed/docs/appx_l.pdf.

EXHIBIT 5

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Turlock Irrigation District
Modesto Irrigation District

Project No. 2299-082

Turlock Irrigation District
Modesto Irrigation District

Project No. 14581-002

**DECLARATION OF DAVID L. SUNDING IN
SUPPORT OF REPLY COMMENTS OF
THE CITY AND COUNTY OF SAN FRANCISCO**

I, David L. Sunding, declare:

1. I am the Thomas J. Graff Professor of Natural Resource Economics at the University of California, Berkeley (“UC Berkeley”), and a principal at The Brattle Group, Inc., an independent economic consulting firm.

2. I am an economist specializing in natural resource and environmental economics, including water resource economics.

3. I completed a Ph.D. in natural resource economics from UC Berkeley. I earned a bachelor’s degree in economics from Claremont McKenna College. My CV is included hereto as Attachment 1. I have over twenty-five years of experience as a water resource economist and have held several prominent academic appointments. I have served two terms as the chair of my department at UC Berkeley, and am a founding director of the Berkeley Water Center. I have served on panels of the National Academy of Sciences and the U.S. EPA Science Advisory Board. Prior to joining the UC Berkeley faculty, I taught at Boston College in the Department of Economics and the School of Law. During the Clinton Administration, I was a senior economist at the President’s Council of Economic Advisors.

4. In 2009, the Commission established a proceeding on proposed interim flow measures for the Don Pedro Hydroelectric Project, Project No. 2299 (“Don Pedro

Project”). I provided testimony in the proceeding on behalf of the San Francisco Public Utilities Commission (“SFPUC”). My testimony explained the socioeconomic impacts that could result to the San Francisco Bay Area from proposed changes to the minimum instream flow requirements for the Don Pedro Project.¹

5. In 2014, I authored a draft report entitled *San Francisco Public Utilities Commission’s 2014 Draft Report on Socioeconomic Impacts of Water Shortages within the Hetch Hetchy Regional Water System Service Area*.² In 2018, I authored a final version of the report, titled *Socioeconomic Impacts of Water Shortages within the Hetch Hetchy Regional Water System Service Area* (“Socioeconomics Report”), which incorporated additional and updated data that became available following preparation of the draft.³ Consequently, the Socioeconomics Report presents updated demand numbers and updated socioeconomic impacts from water shortages on Hetch Hetchy Regional Water System (“RWS”) supplies.

6. In 2017, I authored a report entitled *Bay Area Socioeconomic Impacts Resulting from Instream Flow Requirements for the Tuolumne River*, that analyzed potential socioeconomic impacts to the RWS service area from the California State Water Resources Control Board’s proposed amendment of the Water Quality Control Plan for

¹ SFPUC, Answering Testimony of David L. Sunding at 7:21-8:2, Ex. CSF-20, *Turlock Irrigation Dist.*, Project Nos. 2299-065, -053 (Sept. 22, 2009), eLibrary No. 20090922-5093.

² Technical Appendices for Socioeconomic Impacts of Water Shortages within the Hetch Hetchy Regional Water System Service Area (“2018 Technical Appendices”), prepared for the SFPUC by David L. Sunding, Ph.D., January 19, 2018. Appendix F of the 2018 Technical Appendices contains the *San Francisco Public Utilities Commission’s 2014 Draft Report on Socioeconomic Impacts of Water Shortages within the Hetch Hetchy Regional Water System Service Area* (“Draft Socioeconomics Report”). The Draft Socioeconomics Report is attached to San Francisco’s January 29, 2018 Comments on the Don Pedro Hydroelectric Project, eLibrary No. 20180129-5254.

³ *Socioeconomic Impacts of Water Shortages within the Hetch Hetchy Regional Water System Service Area*, prepared for the SFPUC by David L. Sunding, Ph.D., January 19, 2018. The Socioeconomics Report is attached San Francisco’s January 29, 2018 Comments on the Don Pedro Hydroelectric Project, eLibrary No. 20180129-5254.

the Sacramento-San Joaquin River Delta.⁴ The 2017 Socioeconomic Impacts Analysis also presents updated demand numbers and updated socioeconomic impacts from water shortages on RWS supplies.

7. In all three reports, I used a similar methodology that has been refined over time. In 2016, this methodology was published in the leading peer-reviewed journal in the field of environmental and resource economics.⁵ The basic method for measuring the welfare loss from water shortages that I developed consists of several steps: (1) define levels of consumer demand by sector and by utility; (2) define a level of supply reduction; (3) adjust supplies for dry-year alternatives that may reduce retail shortages; (4) allocate shortages across sectors of demand (i.e., single-family residential, multifamily residential, dedicated irrigation, commercial and industrial, other); (5) calculate the economic loss from restricted consumption measured as the difference between willingness to pay for water and the avoided marginal cost of service.

8. The Socioeconomics Report continues to use the same basic methodology to estimate socioeconomic impacts to the Bay Area from water supply shortages that I used in the 2009 Commission proceeding. During the intervening decade, however, I have repeatedly updated my assumptions to incorporate, among other things, updated census data relevant to consumers' use of water and updated information about RWS system demands and the availability of alternative, dry year non-RWS supplies.

9. This additional, updated information has informed my understanding of the level of water supply reduction that can be borne in the RWS service area solely by

⁴ *Bay Area Socioeconomic Impacts Resulting from Instream Flow Requirements for the Tuolumne River*, The Brattle Group, prepared by David Sunding, Ph.D., March 15, 2017 ("2017 Socioeconomic Impacts Analysis"). The 2017 Socioeconomic Impacts Analysis is attached to San Francisco's January 29, 2018 Comments on the Don Pedro Hydroelectric Project, eLibrary No. 20180129-5254.

⁵ Buck, S., M. Auffhammer, S. Hamilton and D. Sunding, *Measuring Welfare Losses from Urban Water Supply Shortages*, 3 J. Ass'n Env'tl. Resource Economists 743 (2016).

the residential sector and cuts to dedicated irrigation. Once the capacity of the residential sector and dedicated irrigation to absorb all losses has been exceeded, water managers would ultimately be forced to limit water supplies available to businesses in the region and consequently, hiring and economic activity would be curtailed. In general, assuming a pre-drought level of water supply demand, within the RWS service area, the first 20% to 30% of water supply reductions can be borne by the residential sector and dedicated irrigation alone.

David L. Sunding, being first duly sworn, deposes and says that the facts and conclusions set forth in this declaration are true and correct to the best of his knowledge.



David L. Sunding

Subscribed and sworn to before me this 13 day of March 2018.

Name:

Notary Public

My commission expires: _____

See attached document

CALIFORNIA JURAT WITH AFFIANT STATEMENT

GOVERNMENT CODE § 8202

- See Attached Document (Notary to cross out lines 1–6 below)
- See Statement Below (Lines 1–6 to be completed only by document signer[s], *not* Notary)

1 _____

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Signature of Document Signer No. 1

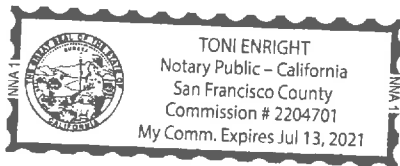
Signature of Document Signer No. 2 (if any)

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
 County of San Francisco

Subscribed and sworn to (or affirmed) before me
 on this 13 day of March, 2018,
 by David L. Sunding
Date Month Year

(1) David L. Sunding
 (and (2) _____),
Name(s) of Signer(s)



Place Notary Seal Above

proved to me on the basis of satisfactory evidence
 to be the person(s) who appeared before me.

Signature Toni Enright
Signature of Notary Public

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____ Document Date: _____

Number of Pages: _____ Signer(s) Other Than Named Above: _____

ATTACHMENT 1

DAVID L. SUNDING

Principal

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David.Sunding@brattle.com

David Sunding has extensive consulting, research, and expert witness experience in environmental economics, natural resources, damages, antitrust and product liability. He has testified before state and federal courts, regulatory bodies, and legislative committees.

Prof. Sunding has played a central role in some of the most important environmental and natural resource cases of the past two decades, including the release of hydrocarbons from the rig *Deepwater Horizon* into the Gulf of Mexico, the development of the Clean Water Rule by the Obama Administration, and EPA's novel exercise of its ex post veto authority in *Arch Coal*. He has served as an economic expert in cases of original jurisdiction before the U.S. Supreme Court, including *Kansas v. Colorado*, *Texas v. New Mexico*, *North Carolina v. South Carolina* and *Florida v. Georgia*. He was a member of the team that negotiated the 2003 amendments to the Colorado River Quantification Settlement Agreement on behalf of the San Diego County Water Authority.

In these and other cases, Prof. Sunding has authored testimony on environmental impacts, health risks, natural resource damages, remediation costs, optimal penalties, resource valuation and other topics. He has employed econometric techniques to analyze issues such as natural resource demands, the impacts of environmental contamination on property values, patterns of subsistence and recreational fishing, and the value of avoiding or reducing health risks. He has implemented surveys to generate environmental and economic data, and has employed survey-based techniques to measure consumer preferences for relevant product characteristics.

Prof. Sunding has testified in cases concerning antitrust, bankruptcy and commercial damages. He has developed testimony on class certification, price fixing, valuation and damages for breach of contract and other causes of action. He has particular industry expertise in oil and gas, chemicals, water, utilities, agriculture, food markets, mining, forestry and land development.

He holds the Thomas J. Graff Chair in the College of Natural Resources at the University of California, Berkeley. He has won numerous awards for his research, including awards from the National Science Foundation, the U.S. Environmental Protection Agency, and private foundations. He served as a senior economist at President Clinton's Council of Economic Advisers where he was responsible for the areas of environment, resources, energy and agriculture. He has been appointed to panels of the U.S. Environmental Protection Agency's Science Advisory Board and the National Academy of Sciences. He taught in the Department of Economics and the School of Law at Boston College, and as a visiting professor in the Woods Institute of the Environment at Stanford University.

An avid mountain biker, he lives in Marin County with his wife and two daughters.

DAVID L. SUNDING**AREAS OF EXPERTISE**

- Environmental Economics
- Natural Resources
- Product Liability
- Damages
- Antitrust
- Survey Research
- Econometrics
- Regulation
- Law and Economics

INDUSTRY EXPERTISE

- Oil and Gas
- Mining
- Chemicals
- Water
- Utilities
- Agriculture
- Food Markets
- Forest Products
- Land Development

PROFESSIONAL WORK EXPERIENCEThe Brattle Group

Principal, San Francisco, CA, 2011 - Present

University of California, Berkeley

Thomas J. Graff Professor of Natural Resource Economics, 2009 – Present

Department Chair, 2013 – Present

Energy and Resources Group, Affiliated Faculty, 2013 – Present

Berkeley Water Center, Director, 2005 – 2013

Professor, 2002 – Present

Associate Professor (with tenure), 2000 – 2002

Center for Sustainable Resource Development, Director, 1997 – 2004

College of Natural Resources, Specialist, 1997 – 2015

Visiting Assistant Professor, 1992 - 1996

DAVID L. SUNDINGStanford University

Woods Institute of the Environment
Visiting Professor, 2010 – 2011

The White House

President's Council of Economic Advisers
Senior Economist, 1996 – 1997

Boston College

Department of Economics and School of Law
Assistant Professor, 1989 – 1992

U.S. Department of State

Freetown, Sierra Leone, 1985

EDUCATIONUniversity of California, Berkeley

Ph.D. in Agricultural and Resource Economics, 1989

University of California, Los Angeles

M.A. in African Area Studies, 1986

Claremont McKenna College

B.A. in Economics, 1983

TESTIMONY IN THE PAST FOUR YEARS

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DAVID L. SUNDING

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DAVID L. SUNDING

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 Natural Resource Economics (Undergraduate)
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 Environmental Policy (Undergraduate)
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ACADEMIC SEMINARS

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From: Ma, Linda (CAT) <Linda.Ma@sfcityatty.org>
Sent: Friday, July 27, 2018 11:54 AM
To: 'LSJR-SD-Comments@waterboards.ca.gov'; WQCP1Comments
Cc: Carlin, Michael (PUC); Knapp, Jonathan (CAT)
Subject: Comment Letter - Revisions to Proposed Bay-Delta Plan Amendments
Attachments: CCSF_Comment_Letter_7-27-18.pdf

Categories: Red Category

Ms. Townsend:

Attached is San Francisco's comments to Plan Amendment and Final SED. A hard copy will also be mailed to you.