

## EXHIBIT SJWD-17

### REBUTTAL TESTIMONY OF KEITH DURKIN, P.E.

1. I hold a Bachelor of Science in Civil Engineering from the University of Illinois. I am a Registered Civil Engineer in California, No. 45167. I have been the Assistant General Manager of San Juan Water District (San Juan) since March 15, 2004.
2. The Department of Water Resources (DWR) and the federal Bureau of Reclamation (Reclamation) have prepared hydrologic modeling to analyze the proposed project and have presented versions of that modeling in this hearing. As discussed in **Exhibit SJWD-1**, results from some of their modeling runs show that, in future conditions with the California WaterFix, Reclamation could draw down Folsom Reservoir to levels that would render it physically impossible for San Juan to obtain the water supplies to which it has rights under its contracts with the United States.
3. I understand that, in their testimony in Part 1A of this hearing, Reclamation's and DWR's witnesses testified that:
  - DWR's modeling, on which Reclamation has relied, "should not necessarily be understood to reflect actually what would occur in the future" in "stressed water supply conditions," which would be conditions "[w]hen system wide storage levels are at or near dead pool" (Exhibit DWR-71, p. 12:15-18); and
  - While DWR's modeling is not reliable for "stressed water supply conditions" (Exhibit DWR-71, p. 12:15-18), implementation of the California WaterFix would not injure any legal user of water, such as San Juan, because DWR's and Reclamation's project operators would operate in real time to ensure that no such injury would occur in such conditions (August 10, 2016 transcript, pp. 253-256; August 11, 2016 transcript, pp. 10, 42-44; August 23, 2016 transcript, pp. 207, 211-217; September 22, 2016 transcript, pp. 183-188, 193-210, 213-221, 224-226, 230-233).
4. Reclamation and DWR have simply claimed that, in dry years, they "would not" operate Folsom Reservoir as depicted in the modeling they have presented, and the operators would avoid drawing the reservoir down so low that it injures legal users of water.

2015 CVP/SWP Drought Operations, Projections and Temporary Urgency Orders

5. Reclamation's recent drought operations contradict these claims and demonstrate the need for enforceable terms and conditions to protect San Juan Water District, the City of Roseville, and other affected legal users of water from the potential injuries that could be caused by the proposed project's increased exports of stored water and the resulting loss of carryover storage to provide a cushion going into potentially dry year conditions.
  
6. For example, in 2015, Reclamation and DWR jointly filed a Temporary Urgency Change Petition with the SWRCB. To process the petition, SWRCB staff asked Reclamation for, and, in March 2015, Reclamation submitted to the SWRCB a draft Temperature Management Plan for Shasta Reservoir. The draft Temperature Management Plan for Shasta evaluated operational scenarios that the SWRCB found would have resulted in the draining of Folsom Reservoir. A copy of Water Right Order 2015-0043, corrected, which discusses that plan at page 17, is **Exhibit SJWD-18**. San Juan and the other water users on the American River recognize that the hydrologic conditions of 2014 and 2015 were unusually dry and that Reclamation's and DWR's operators had to make many difficult choices those years. However, the concern that San Juan and other American River water agencies have is that drought conditions are a fact of life in California; future conditions will certainly include some dry years; by exporting more water and drawing upstream reservoirs down, Cal WaterFix will result in upstream users having less water in storage going into dry years, which decreases reliability and increases risk; and in the recent drought, Reclamation did not operate Folsom Reservoir to mitigate or avoid this risk by maintaining a minimum lake storage level until the SWRCB ordered it to do so.
  
7. As the SWRCB found in Water Right Order 2015-0043, the draft Temperature Management Plan proposed by Reclamation's operators in 2015 would have resulted in "indirect impacts . . . to Oroville and Folsom reservoirs from which more water was released to meet Delta outflow and salinity conditions. . . ." (Exhibit SJWD-18, pp. 41 - 42.) According to Reclamation's own modeling results, two of the proposed scenarios, the "[Sacramento River] salmonid plan" and the "[Sacramento River] temperature optimal plan" caused Folsom Reservoir to hit "dead pool storage." A copy of an email from Ron Milligan, Reclamation, to Tom Howard, State Water Resources Control Board, which included Reclamation's modeling results as an

attachment, is **Exhibit SJWD-19**. Under the Sacramento River salmonid plan, Reclamation indicated that "Folsom storage reaches dead pool by July." (Exhibit SJWD-19, p. 2 ¶ 4.) The modeling results attached to Mr. Milligan's email reveal that, had the Sacramento River salmonid plan been implemented, Reclamation projected that Folsom Reservoir would have been drawn down to 296,000 acre-feet in June and then to 59,000 acre-feet in July. (Exhibit SJWD-19, p. 7.)

8. The undisputed evidence presented in Phase 1A of these hearings indicates that deliveries through the M&I intake become unsafe when the lake holds about 111,000 acre-feet of stored water. (Exhibits Folsom-1, ¶¶ 20-23; SJWD-1, ¶¶ 35-38; Roseville-1e, ¶¶ 37-40.) Under the Sacramento River salmonid plan, between June and July, Folsom Reservoir would have been drawn down to the point that it was no longer safe to use the M&I intake.
9. Under another scenario, the Sacramento River temperature optimal plan, according to Mr. Milligan, "Shasta storage . . . increases but the Folsom storage drops to dead pool later in the year (November 2015)." (Exhibit SJWD-19 p. 2, ¶ 5.) The modeling results show that, under this scenario, Reclamation would have drawn Folsom Reservoir down to 159,000 acre-feet in October, and 58,000 acre-feet in November. (Exhibit SJWD-19 p. 9.) At some point in October, then, Folsom Reservoir would have been drawn down to the point that it was no longer safe to use the M&I intake.<sup>1</sup>
10. Reclamation's preferred scenario avoided these draconian results based, in large part, on more optimistic projections about 2015 hydrology and potential water temperature ranges. (Exhibit SJWD-19 p. 2.)
11. As the SWRCB staff noted, and the SWRCB found in Water Right Order 2015-0043, one of the scenarios Reclamation submitted "assumes that all reductions in water availability as a result of reduced Shasta releases are made up by export reduction and releases from Folsom Reservoir which drives the reservoir to dead pool in July." A copy of the March 30, 2015 Request from SWRCB to Reclamation for a Refined Sacramento River Temperature Modeling Information and a

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<sup>1</sup> Obviously, these operations also would have entirely depleted the cold water pool at Folsom Reservoir and left no water for the salmonids on the American River, including the listed steelhead, but consideration of those points will be deferred until Part 2 of these proceedings, consistent with the Orders issued by the Hearing Officers.

Plan for New Melones Operations to Reasonably Protect Fish and Wildlife is **Exhibit SJWD-20**.

12. In 2015, the SWRCB stepped in to ensure the protection of the water rights of San Juan and other legal users of American River water. When Reclamation submitted its proposed operations plan, SWRCB staff requested evaluation of additional scenarios that did not cause drain Folsom Reservoir. (Exhibit SJWD-18, p. 17.)
13. Reclamation modified its operations plans and the Temperature Management Plan for Shasta several times between March and June 2015 to reflect the hydrology, which was drier than the "90% exceedance forecast" Reclamation had made earlier in the year. However, the 2015 revised Shasta Temperature Management Plan that Reclamation's operators submitted to the SWRCB in mid-June proposed to allow Reclamation to draw Folsom Reservoir down to 120,000 acre-feet of stored water by the end of September. A copy of Reclamation's "Shasta Temperature Management Plan – Key Components" dated June 18, 2015 is **Exhibit SJWD-21**.
14. The undisputed evidence presented in Phase 1A of these hearings indicates that, at 120,000 acre-feet in storage, Folsom Reservoir would have only about 8,000 acre-feet of water supplies available before deliveries became unsafe. (Exhibits Folsom-1, ¶¶ 20-23; SJWD-1, ¶¶ 35-38; Roseville-1e, ¶¶ 37-40.)
15. As discussed in **Exhibit SJWD-1**, the result of Reclamation's 2015 operations was that Folsom Reservoir was drawn down to its lowest point ever in early December 2015. If the winter of 2015-2016 had been as dry as either of the two preceding winters, San Juan likely would have had to rely on Reclamation's proposed E-Pump system at some point in 2016. As discussed in **Exhibit SJWD-1**, that pumping system would not have satisfied San Juan's water rights or its related contracts with the United States and would not have enabled Reclamation to deliver much more than a small portion of San Juan's other water supplies or of Roseville's water supplies.
16. The events leading up to the SWRCB's issuance of Water Rights Order 2015-0043 further confirm that, in future dry years with California WaterFix in place, Reclamation likely would not operate Folsom Reservoir to ensure that San Juan and Roseville suffer no injury as legal users of water, unless the SWRCB imposes terms and conditions to protect American River water users.

17. On or about December 7, 2015, the SWRCB circulated a draft water-right order that proposed to include the following temporary term on Reclamation's operations, as a condition of granting the Temporary Urgency Change Petition that Reclamation and DWR had jointly sought:

In coordination with the American River water supply providers, the Water Forum, and the fisheries agencies, Reclamation shall develop a plan for operations of Folsom Reservoir that provides for the reasonable protection of municipal water supplies and fisheries dependent on Folsom Reservoir. The plan shall include a minimum end of October 2016 storage level of at least 200 thousand acre-feet (TAF) to ensure adequate supplies for municipal uses going into the 2017 water year. The plan shall include minimum monthly storage levels and appropriate constraints on flow releases to achieve at least 200 TAF of storage at the end of October 2016. The plan shall be submitted to the Executive Director for approval by February 1, 2016, and shall be implemented by Reclamation with any changes directed by the Executive Director.

A copy of the SWRCB's draft order, with the SWRCB's explanatory documents, is **Exhibit SJWD-22**. The relevant proposed term appears on page 63 of the draft order.

18. Reclamation's Regional Director and supporters of the California WaterFix in this hearing, including the State Water Contractors, San Luis & Delta-Mendota Water Authority (SLDMWA) and Westlands Water District, all submitted letters to the SWRCB opposing the inclusion of this term to ensure sufficient water was maintained in Folsom Reservoir to meet these beneficial uses. Specifically, Reclamation's Regional Director urged the SWRCB not to impose any "substantive carryover requirements." The letter from Reclamation's Regional Director is **Exhibit SJWD-23**. The letter from the State Water Contractors is **Exhibit SJWD-24**. The letter whose senders include San Luis & Delta-Mendota Water Authority and Westlands Water District is **Exhibit SJWD-25**.
19. Ultimately, the SWRCB adopted Water Right Order 2015-0043 and included a term concerning Folsom Reservoir storage. (Exhibit SJWD-18, Term 4 at pp. 63-64.) The SWRCB did not substantively modify the Folsom-storage term from the December 7, 2015 draft order.

20. The letters objecting to the inclusion of a term to protect the legal users of American River water who depend on Folsom, especially Reclamation's letter, demonstrate that Reclamation might not maintain the minimum Folsom Reservoir storage necessary for Reclamation to be able to meet San Juan's water rights and related contracts and deliver Roseville's water supplies if it is not required to do so. Unless the SWRCB imposes a term or condition requiring Reclamation to maintain specified minimums in Folsom Reservoir, it is possible that, in a future very dry year with California WaterFix in place, Reclamation will operate the CVP, with California WaterFix, in a manner that results in Folsom Reservoir being drawn so low that water supplies cannot physically be delivered to those who depend on them.

### 2016 CVP/SWP Operational Projections

21. The *Central Valley Project and State Water Project 2016 Drought Contingency Plan For Water Operations February – November 2016* also demonstrates that, in future dry years with California WaterFix, it is at best questionable that Reclamation and DWR would take real-time operational steps necessary to ensure that San Juan and Roseville, and other legal users of American River water such as the City of Folsom, are not injured. Reclamation and DWR first submitted that document to the SWRCB on January 15, 2016 and then issued a series of addenda. **Exhibit SJWD-26** is the document that Reclamation and DWR submitted May 27, 2016 and contains not only the addendum for May, but also those for February, March and April. The complete document contains, among other things, projected end-of-month storages for CVP and SWP reservoirs through October 2016. The projected end-of-month storages for 90% exceedance and 99% exceedance scenarios for Folsom Reservoir, Lake Shasta and Lake Oroville from that document are as follows:

[SEE NEXT PAGE FOR TABLE]

	<b>Folsom Reservoir End-of-Sept Storage</b>	<b>Folsom Reservoir End-of-Oct Storage</b>	<b>Lake Shasta End-of-Sept Storage</b>	<b>Lake Shasta End-of-Oct Storage</b>	<b>Lake Oroville End-of-Sept Storage</b>	<b>Lake Oroville End-of-Oct Storage</b>
1/15/16 drought plan – 99% exceedance	97,000	75,000	305,000	175,000	695,000	633,000
1/15/16 drought plan – 99% exceedance, modified D-1641	97,000	75,000	863,000	795,000	841,000	779,000
1/15/16 drought plan –90% exceedance	200,000	162,000	1,059,000	1,013,000	1,143,000	1,109,000
1/15/16 drought plan – 90% exceedance, modified D-1641	200,000	162,000	1,572,000	1,525,000	1,319,000	1,286,000
2/19/16 addendum 1 – 99% exceedance	125,000	133,000	1,670,000	1,536,000	1,031,000	952,000
2/19/16 addendum 1 – 99% exceedance, modified D-1641	211,000	219,000	1,791,000	1,676,000	1,031,000	952,000
2/19/16 addendum 1 – 90% exceedance	289,000	236,000	2,238,000	2,188,000	1,300,000	1,160,000
3/22/16 addendum 2 – 90% exceedance	259,000	206,000	2,405,000	2,353,000	1,300,000	1,160,000
4/22/16 addendum 3 – 90% exceedance	502,000	449,000	2,854,000	2,663,000	1,716,000	1,405,000
5/27/16 addendum 4 – 90% exceedance	388,000	335,000	3,021,000	2,812,000	1,810,000	1,522,000

22. A comparison of these end-of-month storage projections demonstrates several points relevant to the question of how Reclamation and DWR might operate in future drought years with California WaterFix in place.
23. First, the projections indicate that, within the CVP, January projections indicate that the contemplated temporary urgency change would have benefited end-of-September and end-of-October Shasta storage by over 500,000 acre-feet, but Folsom storage would not have benefited at all. The February projections indicate that, as hydrologic conditions improved, Reclamation sought to provide some benefit to Folsom storage if a temporary urgency change were necessary, with such a change projected to benefit end-of-September and end-of-October Folsom storage by approximately 80,000 acre-feet, while Shasta storage would have benefited by approximately 120,000-140,000 acre-feet. These intra-CVP variances in storage benefits are particularly instructive concerning possible future Reclamation operations because, given that Reclamation was projecting year-long 2016 operations, it presumably had at least some discretion in how to allocate storage benefits resulting from modified Delta requirements between Shasta and Folsom in making these projections.
24. Second, even with improved hydrologic conditions from February through May 2016, the CVP/SWP operational projections reflected *decreases* in end-of-September and end-of-October Folsom storage while reflecting consistent *increases* in Shasta and Oroville storage for those months. The February 90% exceedance projections did not reflect an alternative involving a possible temporary urgency change. The March through May projections included 90% exceedance projections, but not 99% exceedance projections. From February through May, the 90% exceedance projections showed consistent increases in end-of-September and end-of-October Shasta and Oroville storage. In contrast, the end-of-September and end-of-October Folsom projections varied, with the projections from March being lower than the projections from February by approximately 30,000 acre-feet and the projections from May being over 100,000 acre-feet lower than those from April. These sorts of differences in Folsom storage can make the difference, in a very dry year, between the lake level being sufficient to allow safe use of the primary M&I Intake and San Juan and Roseville being forced to rely on Reclamation's E-Pump system, which cannot fully satisfy their needs, as demonstrated in Part 1B.



**Proposed Terms and Conditions to Address Injury to City's  
Water Supplies Resulting From California WaterFix**

25. San Juan's experience and the available operational data and projections from Reclamation and DWR are inconsistent with their witnesses' testimony that they will implement California WaterFix in way so that it will not injure San Juan and Roseville as legal users of water. As a physical matter, Reclamation must maintain Folsom Reservoir's water level above the existing M&I intake for Reclamation to be able to satisfy San Juan's water right, its related contracts with the United States, and San Juan's and Roseville's other water supplies (which rely on an operable M&I Intake for physical delivery of the water). In 2015, real-time CVP/SWP operations resulted in Folsom Reservoir being drawn down to the lowest point since it initially filled, and Reclamation itself opposed the inclusion of temporary water-right terms requiring Reclamation to plan to maintain minimum end-of-October Folsom storage sufficient to provide some water supply reliability for San Juan and other American River region water agencies. Finally, in 2016, the CVP/SWP drought operations plan indicated that, while Shasta and Oroville generally would benefit from improved hydrologic conditions, Folsom operations nonetheless still would vary, with possible impacts on its storage.
  
26. San Juan is very concerned that implementation of the California WaterFix will increase the risk that Reclamation will operate Folsom Reservoir to release more water and therefore will cause Folsom to be drawn too low going into a very dry year to protect sufficient water supplies for that year. To address these concerns, San Juan has worked with the Water Forum and other American River water suppliers to develop proposed terms and conditions for the SWRCB's consideration. Those terms and conditions generally are known as the "modified flow management standard" (Modified FMS) because they would modify the existing 2006 lower American River flow management standard to which Reclamation is supposed to operate Folsom Reservoir. Tom Gohring of the Water Forum has been the project manager for the Modified FMS's development. Mr. Gohring is presenting the portions of the Modified FMS that reflect its proposed water-right terms and conditions. San Juan supports the SWRCB's adoption of those terms and conditions in this hearing.
  
27. **Exhibit SJWD-27** is a PowerPoint that serves as the summary of this rebuttal testimony.