



March 11, 2016

**SENT VIA EMAIL:** [CWFhearing@waterboards.ca.gov](mailto:CWFhearing@waterboards.ca.gov)

Hearing Chair Tam Doduc  
Hearing Officer Felicia Marcus  
State Water Resources Control Board  
P.O. Box 100  
Sacramento, California 95812-0100

Re: Written Response to March 4 Requirement to Address Information Requests from California Water Research and Sacramento Valley Water Users

In the March 4, 2016 Revised Hearing Schedule, Revised Notices of Intent to Appear, Electronic Service and Submissions, and Other Procedural Issues Concerning the California WaterFix (CWF) Water Right Change Petition Hearing the State Water Resources Control Board (State Water Board) required that the Petitioners respond within seven days of that revised pre-hearing ruling "identifying how the concerns identified in the letters [February 4, 2016 from California Water Research, and February 17, 2016 and February 25, 2016 from Sacramento Valley Water Users] will be addressed." This letter provides information in response to the State Water Board March 4 notice.

On March 10, 2016, California Water Research submitted to the Department of Water Resources (DWR) and U.S. Bureau of Reclamation (USBR) a request for further information, which we are reviewing to develop an appropriate response.

The questions raised in the February letters from California Water Research and the Sacramento Valley Water Users are summarized by the State Water Board as a request to provide additional information on the hydrologic modeling used to support the CWF analyses for the EIR/S and the petition hearing. Specifically the Board requested "a complete list of the versions of all computer models used in producing analyses for the WaterFix". The three Tables provided below list this information.

Several models and analytical methods were used to characterize and analyze the operational changes in water operations in the State Water Project (SWP) and Central Valley Project (CVP) systems. These tools represent the best available technical tools for purposes of conducting the analyses at issue. The overall flow of information between the models is shown in Figure 1.

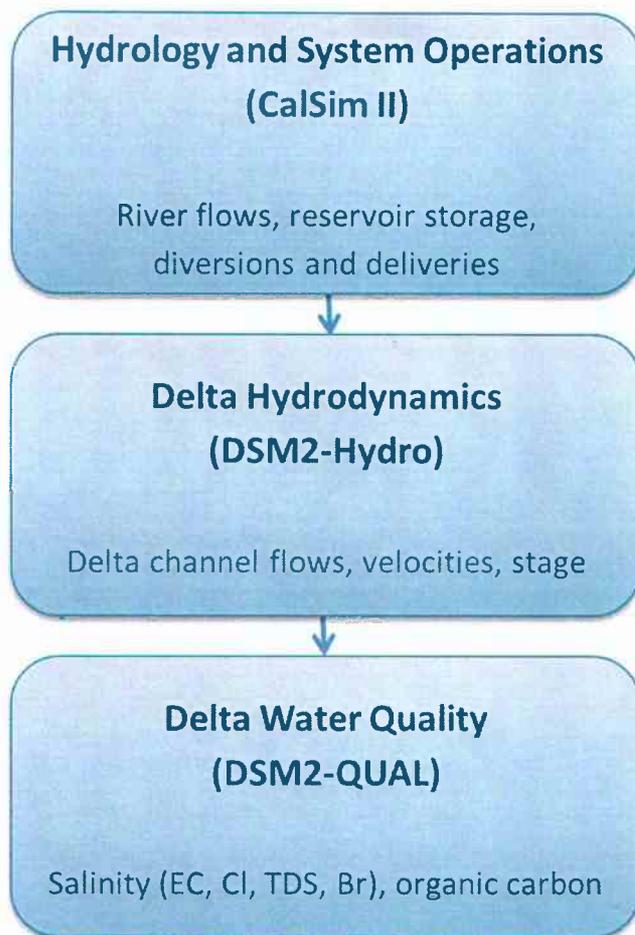


Figure 1. Use of Modeling Tools and Results in CWF Analyses

In general, CALSIM II is used to simulate the operations of the SWP and CVP. The output of this model is then used by the DSM2 model to simulate the hydrodynamics, water quality, and particle tracking. With the information generated from these models, the water supply, flows, and water quality can be compared under different operating scenarios. See Section 4.3 and Appendix 5A of the Draft BDCP EIR/S (Nov 2013) for a more detailed description of the various models.

CALSIM II and DSM2 are both public models and are available for download on DWR's Bay-Delta Office website <http://baydeltaoffice.water.ca.gov/modeling/index.cfm>. Consistent with DWR's policy of ensuring a transparent process, both the CALSIM II and DSM2 modeling input and output data used to support the CWF environmental impact analyses have been released to the public. Table 1 provides a summary of the data developed, including the CALSIM II version used, for the currently proposed CWF project (Alternative 4A) and the associated No Action Alternative for each of the environmental documents (including Final EIR/EIS that is in preparation), as well as information on when the information was made available to the public.

Table 1. Model Data and Availability Used in Developing BDCP/CWF Environmental Analyses

|                       | <b>Recirculated DEIR/SDEIS</b>                                       | <b>Final EIR/EIS</b>                                   | <b>CWF Biological Assessment for ESA Section 7</b>        | <b>Change Petition</b>             |
|-----------------------|--|--|---|------------------------------------|
| No Action Alternative | No Action Alternative at Early Long Term (ELT)                       | No Action Alternative at ELT with Fremont Weir updates | No Action Alternative at ELT revised per ESA requirements | Same as Biological Assessment (BA) |
| Alternative 4A        | Modeled as a range between Alternative 4 H3 and H4 operations at ELT | Alternative 4A H3+ operations at ELT                   | Alternative 4A H3+ operations at ELT                      | Same as BA                         |
| CALSIM Version        | 2010   | 2010   | 2015  | 2015                               |
| Date Data Available   | November 2011 (model runs developed for administrative record)       | February 2016  | February 2016   | February 2016                      |

Table 2 provides a summary of the hydrological models used for all the alternatives considered in the BDCP/CWF EIR/EIS as well as the ESA Section 7 draft Biological Assessment, including both the CALSIM II version and the DSM2 timespan. Table 3 includes the list of climate change sensitivity analyses that were conducted for the ESA Section 7 draft Biological Assessment.

Table 2: Summary of the CALSIM II and DSM2 models used for Alternatives evaluation in the BDCP/CWF EIR/EIS (2013 Draft, 2015 Recirculated Draft, and Preparation of Final) and CWF ESA Section 7 Biological Assessment

| Alternative  | Used in 2013 Draft EIR/EIS | Used in 2015 Recirculated Draft EIR/SDEIS | Used in Preparation Final EIR/EIS | Used in Biological Assessment | Calsim II version | DSM2 time span | Date Available to Public |
|--|----------------------------|---|-----------------------------------|-------------------------------|-------------------|----------------|--------------------------|
| Existing Conditions  | X                          | X   | X                                 |                               | 2010              | 16 years       | April 2012               |
| No Action Alternative at Late Long Term (LLT)                        | X                          |   |                                   |                               | 2010              | 16 years       | Nov 2011                 |
| No Action Alternative at ELT   |                            | X   |                                   |                               | 2010              | 16 years       | Nov 2011                 |
| Updated No Action Alternative at ELT                                 |                            |   | X                                 |                               | 2010              | 16 years       | Feb 2016                 |
| CWF Sec 7 BA Base Model  |                            |   |                                   | X                             | 2015              | 82 years       | Feb 2016                 |
| Alternative 1 A/B/C at LLT   | X                          |   |                                   |                               | 2010              | 16 years       | Nov 2011                 |
| Alternative 2 A/B/C at LLT   | X                          |   |                                   |                               | 2010              | 16 years       | Nov 2011                 |
| Alternative 2D at ELT – used Alternative 2 A/B/C at LLT as surrogate |                            | X   |                                   |                               | 2010              | 16 years       | Nov 2011                 |
| Alternative 2D at ELT  |                            |   | X                                 |                               | 2010              | 16 years       | Feb 2016                 |

| <b>Alternative</b>   | <b>Used in 2013 Draft EIR/EIS</b> | <b>Used in 2015 Recirculated Draft EIR/SDEIS</b> | <b>Used in Preparation Final EIR/EIS</b> | <b>Used in Biological Assessment</b> | <b>Calsim II version</b> | <b>DSM2 time span</b> | <b>Date Available to Public</b> |
|--|-----------------------------------|--|--|--------------------------------------|--------------------------|-----------------------|---------------------------------|
| Alternative 3 at LLT   | X                                 |  |  |                                      | 2010                     | 16 years              | Nov 2011                        |
| Alternative 4 H1 at LLT  | X                                 |  |  |                                      | 2010                     | 16 years              | Dec 2013                        |
| Alternative 4 H2 at LLT  | X                                 |  |  |                                      | 2010                     | 16 years              | Dec 2013                        |
| Alternative 4 H3 at LLT  | X                                 |  |  |                                      | 2010                     | 16 years              | Nov 2011                        |
| Alternative 4 H4 at LLT  | X                                 |  |  |                                      | 2010                     | 16 years              | Dec 2013                        |
| Alternative 4A at ELT<br>– Used Alternative 4 H3 at ELT as a bookend |                                   | X  |  |                                      | 2010                     | 16 years              | Nov 2011                        |
| Alternative 4A at ELT<br>– Used Alternative 4 H4 at ELT as a bookend |                                   | X  |  |                                      | 2010                     | 16 years              | Dec 2013                        |
| Alternative 4A at ELT  |                                   |  | X  |                                      | 2010                     | 16 years              | Feb 2016                        |
| CWF Sec 7 BA Proposed Action (Alternative 4A)                        |                                   |  |  | X                                    | 2015                     | 82 years              | Feb 2016                        |

| <b>Alternative</b>  | <b>Used in 2013 Draft EIR/EIS</b> | <b>Used in 2015 Recirculated Draft EIR/SDEIS</b> | <b>Used in Preparation Final EIR/EIS</b> | <b>Used in Biological Assessment</b> | <b>Calsim II version</b> | <b>DSM2 time span</b> | <b>Date Available to Public</b> |
|---|-----------------------------------|--|--|--------------------------------------|--------------------------|-----------------------|---------------------------------|
| Alternative 5 at LLT  | X                                 |  |  |                                      | 2010                     | 16 years              | Nov 2011                        |
| Alternative 5A at ELT<br>- Alternative 5 at ELT<br>as a surrogate |                                   | X  |  |                                      | 2010                     | 16 years              | Nov 2011                        |
| Alternative 5A at ELT   |                                   |  | X  |                                      | 2010                     | 16 years              | Feb 2016                        |
| Alternative 6 A/B/C at LLT  | X                                 |  |  |                                      | 2010                     | 16 years              | Nov 2011                        |
| Alternative 7 at LLT  | X                                 |  |  |                                      | 2010                     | 16 years              | Nov 2011                        |
| Alternative 8 at LLT  | X                                 |  |  |                                      | 2010                     | 16 years              | Nov 2011                        |
| Alternative 9 at LLT  | X                                 |  |  |                                      | 2010                     | 16 years              | Nov 2011                        |

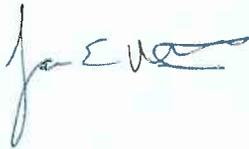
Table 3: Summary of the models used for climate change sensitivity analysis in the CWF Section 7 Biological Assessment

| <b>Alternative</b>   | <b>Calsim II version</b> | <b>DSM2 time span</b> | <b>Date Available to Public</b> | <b>Purpose</b>  |
|--|--------------------------|-----------------------|---------------------------------|---|
| CWF Sec 7 BA Base Model – at ELT under Q5 climate projection                       | 2015                     | 82 years              | Feb 2016                        | Effects Analysis; Climate change sensitivity Analysis |
| CWF Sec 7 BA Base Model under current climate                                      | 2015                     | N/A                   | Feb 2016                        | Climate change sensitivity Analysis                   |
| CWF Sec 7 BA Base Model at ELT under Q2 climate projection                         | 2015                     | N/A                   | Feb 2016                        | Climate change sensitivity Analysis                   |
| CWF Sec 7 BA Base Model at ELT under Q4 climate projection                         | 2015                     | N/A                   | Feb 2016                        | Climate change sensitivity Analysis                   |
| CWF Sec 7 BA Proposed Action (Alternative 4A) – at ELT under Q5 climate projection | 2015                     | 82 years              | Feb 2016                        | Effects Analysis; Climate change sensitivity Analysis |
| CWF Sec 7 BA Proposed Action (Alternative 4A) under current climate                | 2015                     | N/A                   | Feb 2016                        | Climate change sensitivity Analysis                   |
| CWF Sec 7 BA Proposed Action (Alternative 4A) at ELT under Q2 climate projection   | 2015                     | N/A                   | Feb 2016                        | Climate change sensitivity Analysis                   |
| CWF Sec 7 BA Proposed Action (Alternative 4A) at ELT under Q4 climate projection   | 2015                     | N/A                   | Feb 2016                        | Climate change sensitivity Analysis                   |

In order to ensure consistency and comparability between alternatives for the EIR/EIS it was important to use the same version of the models for all alternatives. Therefore, although the CA WaterFix and other non-HCP/NCCP Alternatives were developed after release of the Draft EIR/EIS, and a slightly modified version of CALSIM II was available, it was decided to use the same base model of CALSIM II (2010) and patterning period for DSM2 (16 year record) for analysis of *all* new alternatives in both the 2015 Recirculated Draft EIR/SDEIS and forthcoming Final EIR/EIS. However, because the Endangered Species Act has a requirement to use Best Commercially Available Scientific Data, it was decided among USBR, USFWS, NMFS and DWR to use the most recent version of CALSIM II (2015) and a longer patterning period for DSM2 (82-year record) for the Biological Assessment. As noted in Table 1 above, the modeling conducted for the BA is the basis of the information that will be used in the case-in-chief in the Hearing process.

Due to the volume of data and the complexity of the associated models, the Department has found it more user-friendly to work with the requestor to ensure they have the information needed to utilize the data. It appears that this process is, in the words of Deirdre Des Jardins, "a major improvement." In some cases where the user is experienced and familiar with CALSIM II and/or DSM2 it has been efficient to provide a link allowing them to download the data directly. In either case, the Department has strived to provide the data in an effective and efficient manner.

Sincerely,



Tripp Mizell  
Senior Attorney  
Office of the Chief Counsel  
CA Department of Water Resources



Amy L. Aufdemberge  
Assistant Regional Solicitor  
Office of the Regional Solicitor  
U.S. Department of the Interior

cc: *Electronic Service*

Tom Howard, Executive Officer, State Water Resources Control Board  
Michael Lauffer, Chief Counsel, State Water Resources Control Board  
Electronic service list, March 8, 2016

*Personal Service via U.S. Postal Service*

Suzanne Womack and Sheldon Moore  
Clifton Court, L.P.  
3619 Land Park Drive  
Sacramento, CA 95818