To promote the economic, social and environmental viability of Northern California by enhancing and preserving the water rights, supplies and water quality of our members.

October 13, 2010

Armin Munevar
CH2M Hill
402 W. Broadway, Ste. 1450
San Diego, CA 92101

Re: BDCP Flow Modeling

Dear Armin:

We received your September 29, 2010 transmittal with the DVD containing the Draft Physical Modeling Results. We have asked MBK Engineers to provide their expertise to help us understand how flows from areas upstream of the Delta are being considered in this process. We are forwarding a memorandum from MBK that we hope will provide further detail on the information that we are seeking and which we believe will help us more fully understand how this process will affect areas upstream of the Bay-Delta.

Thank you for your attention to this matter.

Sincerely yours,

David J. Guy

cc: Stuart Somach, Dan Kelly
Paul Cylinder
Laura-King Moon
Jerry Johns

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MBK ENGINEERS

Water Resources • Flood Control • Water Rights

M E M O R A N D U M

DATE: October 9, 2010

TO: David Guy

FROM: Walter Bourez

SUBJECT: BDCP modeling

Pursuant to your request we have reviewed the modeling results provided by BDCP modelers. The information on the CD is very limited and it is not possible to fully understand how BDCP alternatives may affect conditions in the Sacramento River Basin. Output from the water operations model, CalSim II, includes 16 output variables to describe operations in the Sacramento River basin upstream of the Delta. The Table below contains a list of all variables provided from CalSim II that were provided for four BDCP alternatives. Although these outputs are for key locations in the system, it is certainly not possible to understand potential effects of the BDCP alternatives with this limited information.

CalSim II Variables

North of Delta	Delta Flows and Diversions	South of Delta and Deliveries
Trinity R blw Lewiston	Banks	Total SWP & CVP SOD Deliveries
Trinity Export	Banks SWP	SWP SOD Deliveries
Clear Cr blw Whiskeytown	Banks IF	Table A (Incl. Article 56)
Sacramento R @ Keswick	Banks TD	Article 21
Sacramento R @ Red Bluff	Banks CVP	Article 56*
Sacramento R @ Wilkins Slough	Tracy	CVP SOD Deliveries
Feather R blw Thermalito	Tracy IF	CVP SOD Deliveries thr. Exports
Feather R @ Confluence	Tracy TD	CVP SOD Deliveries thr. James B.
American R blw Nimbus	NBA	SOD Losses**
American R @ Confluence	CCWD	SOD Canal Losses
Sacramento R @ Hood	Net DICU (non-project)	CVP SL Storage
Yolo Bypass	North Delta (non-project)	SWP SL Storage
Trinity Storage	Required outflow	San Luis Evaporation
Shasta Storage	Surplus outflow	
Folsom Storage	Mokelumne R	
Oroville Storage	San Joaquin R d/s Calaveras	

Sacramento River Temperature Modeling
Changes in Sacramento River temperature are important for estimating effects to salmon spawning habitat. Output is provided for key compliance points on the upper Sacramento River as follows:

- Keswick
- Balls_Ferry
- Jellys_Ferry
- Bend_Br
- Red_Bluff
- Hamilton_City

Changes in temperature are driven by changes in operations or changes in temperature control device operations, it is difficult to determine what is causing temperature changes without having the models; including the input data and assumptions.

DSM2
Although MBK does not run DSM2, we have worked with experts that do. MBK has been responsible for developing input to DSM2 and interpreting results for various projects. As with CalSim II and the Sacramento River temperature model output, it would be very helpful to have DSM2 inputs and outputs; the model should be available at DWR's website.

In order to efficiently review and evaluate the BDCP modeling we recommend NCWA request all the models used for the BDCP analysis including inputs, tools used to develop inputs, full outputs, output processors, and any available documentation. We believe this will avoid us drawing incorrect conclusions and spending limited funds in an inefficient manner.