Sutter MWC Exh. 1

MBK ENGINEERS

Water Resources • Flood Control • Water Rights

MEMORANDUM

DATE: April 10, 2003

TO: Sutter Mutual Water Company

FROM: Marc Van Camp

SUBJECT: Sutter Mutual Water Company Revised Contract Quantity

Introduction / Purpose

As you are aware, the U.S. Bureau of Reclamation (Bureau) has proposed, for purposes of contract renewal, that Sutter Mutual Water Company (Company) reduce its quantity of water from that held under its current Sacramento River Settlement Contract. This proposal is based on a needs analysis prepared by Bureau staff. The purpose of this memorandum is to provide the Company with (i) comments on the Bureau needs analysis; and (ii) a proposal for a revised contract quantity for the Company. We will provide monthly, base and project quantities, together with justification for the quantities proposed.

USBR Needs Analysis

The Bureau performed a needs analysis assuming an 80% irrigation efficiency and arrived at a total contract need of 187,000 AF. The Bureau has recently proposed a reduced contract quantity of 208,600 AF, increased from the needs analysis, based on the unique connate (high salinity) water conditions found in the Sutter Basin. The focus of this memorandum is the validity of certain assumptions utilized in the Bureau needs analysis. In instances where we disagree with Bureau assumptions, we have identified our proposed alternative assumptions, with support.

In preparing its needs analysis, the Bureau utilized information and data from the September 2000 Sacramento River Basin-Wide Water Management Plan (BWMP). The BWMP arrives at a total Company water requirement of between approximately 240,000 and 260,000 AF. The methodology used in the BWMP has been reviewed and preliminarily accepted by Bureau staff. In its needs analysis for the Company, however, the Bureau selectively utilizes certain numbers from the BWMP (crops and acreages) but employs a methodology for estimating the Company's total water needs different from that utilized in the BWMP. While we believe that the Bureau needs analysis represents a good faith attempt to estimate the Company's water requirements, in our opinion, the lack of consistency between the BWMP and the Bureau analysis demonstrates the lack of adequate data to support the assumptions made in connection with the Bureau needs analysis. More significantly, embedded in the assumptions

made by the Bureau in connection with its needs analysis are certain policy determinations (discussed below) as to what is an appropriate margin of safety with respect to salt buildup in the soils of the Sutter Basin.

Reduced Contract Quantity Proposal

Attachment 1 is a monthly listing of the Company's proposed contract quantities for inclusion in its renewed Sacramento River Settlement Contract. You will find the total April through October quantity is 247,900 AF with a project quantity of 75,000 AF during the critical months of July through September. Under this proposal, we suggest no change in base supply quantities from the existing contract, elimination of June project water and a 50% reduction in September project water.

Justification for Proposed Contract Quantities

The 247,900 AF of April through October total supply (172,900 AF of base and 75,000 AF of project supply) and the 119,000 AF of July through September critical months total supply (44,000 AF of base and 75,000 AF of project supply) shown on Attachment 1 is supported by the maximum use that has occurred under the existing contract. Attachment 2 is a plot showing current contract quantities and diversions for April through October and the critical months of July through September for 1964 through 2002. The diversion data is from the Bureau's water account records and represents all Sacramento River diversions accounted for under the Company's contract. You will find that diversions during the April through October and July through September periods have exceeded the proposed quantities.

In our opinion, the quantities under a Sacramento River Settlement Contract should be viewed in a manner that is consistent with water right principles under California water law. As you are aware, the State Water Resources Control Board's water rights licenses are based on a year of maximum use during the period in which the water right holder held a permit. We believe it is inappropriate for the Bureau to suggest some average quantity or other quantity that would not provide the flexibility needed by the agricultural community and recognized by the State Water Resources Control Board to adapt to variable hydrologic factors and commodity markets. Should we suggest the State Water Resources Control Board license the CVP on something less than its maximum year of use with a renewal of that license quantity on a regular basis? If so, we know water users cannot operate to the license or contract quantity each and every year. Therefore, a future renewed license based on an average use would be less than the license quantity. This reduction would occur upon each renewal and result in a continuous reduction.

In our opinion, use of an historical maximum diversion figure is a reasonable approach to arrive at a renewed contract quantity for the Company. As detailed in the declaration of David Richter (Attachment 3), the cropping pattern is in a transition period due to the closing of local tomato canneries and changes in the market for rice. The majority of these lands are expected to convert from tomatoes to rice. This conversion will result in a higher diversion requirement than

seen in recent periods. This increased diversion requirement may approximate diversions experienced historically. Historical diversion quantities represent reasonable and beneficial use which is governed by economics. Any excess diversions are an added expense to the Company. In addition, this excess diversion results in additional drainage, and therefore pumping costs.

Soil Salinity

It is well-documented that the Company's service area is underlain by high salinity connate groundwater that infiltrates the Company's water delivery and drainage system. In general, areas with salinity problems have higher irrigation water requirements due to the need to leach salts from the soil. The Company is the only Sacramento River Settlement Contractor we are aware of that operates its system to an internal downstream water quality. The Board of Directors takes action at each annual meeting to establish the operational threshold. Using a historical maximum use quantity for the contract will facilitate the appropriate application of water to maintain the salt balance within the Sutter Basin. The Natural Resources Conservation Service (NRCS) (Attachment 4) completed a report on the Sutter Basin dated February 1996 which indicates that 60% efficiency provides for the appropriate salt balance for the Sutter Basin. Using this 60% efficiency in the Bureau's needs analysis results in a total water need of 240,000 AF for the Company.

It is important to recognize the cautions identified in the NRCS report. The report states: **"drastic cutbacks in water availability would most likely lead to an increase in soil salinity and impact crop productivity and have an adverse impact on wildlife habitats and populations"** (NRCS Report at Page 12). The Bureau funded a report titled "Proposed Salinity Management Program" dated June 2000, prepared by the Irrigation Training and Research Center of California Polytechnic State University, San Luis Obispo (Attachment 5). This report clearly identifies the poor quality of water in the drainage system at the Company's downstream location restricting its reuse potential. A report titled "Salinity Distribution and Impact in the Sacramento Valley" prepared by John Dickey and Gary Nuss of CH2MHill further identifies the concern of increasing soil salinity due to increases in applied water salinity. A copy of this report is included as Attachment 6. Although this report utilizes data collected from Glenn-Colusa Irrigation District, it examines the problem of soil salinity buildup throughout the Sacramento Valley. Based on our review of the latter report and our understanding of the various conditions, such as connate water that affect the Company, the issue of soil salinity buildup is likely of greater concern for the Company than for any other settlement contractor in the Sacramento Valley.

Effective Precipitation

The Bureau's needs analysis assumes an average effective precipitation of 15,300 AF. We believe it is important to recognize in the Sacramento Valley the obvious potential for little to no precipitation to occur. For example, in 1994 the total March through August precipitation was 1.8 inches or approximately 3,600 AF of effective precipitation for the Company.

Therefore, a quantity of 247,900 AF is supported through the use of the Bureau's needs analysis when adjusting the assumptions relative to efficiency and effective precipitation.

Base Supply and Project Water

We have recommended only the reduction of project water because the Company's percent of project water to total supply is high compared to other contractors of similar size and water right priority. Attachments 7 and 8 show the percentage of base and project water of the total contract quantity and critical months contract quantity for the six larger contractors excluding Anderson-Cottonwood Irrigation District. The Company's water rights are of the approximate same priority, between 1916 and 1921, as the water rights held by the other contractors identified on these attachments with the exception of Glenn-Colusa Irrigation District, which claims pre-1914 water rights. By only reducing project water supply, we are proposing a minor change in the percentage of project water for the Company, from 35 percent of total contract supply to 30 percent. This does not put the Company in line with the other contractors but at least moves in the appropriate direction, given the Company's water right priorities. We understand the 1956 Cooperative Studies were the basis for the water right yields and deficiencies which began the process of negotiating the quantities contained in the current contracts. We are aware of no basis for allocating the Company with a greater percentage of project water, than the other larger contractors. With this in mind, we believe it is appropriate to only reduce project water and not reduce base supply.

Our justification for eliminating June project water and reducing September project water is based solely on the limited project water use in June from 1992 through 2002.

Potential Impacts

Attachment 9 is comparable to Attachment 2 but has the Company's proposed contract quantities for the April through October and critical months period. Based on review of this attachment, the Company would have exceeded its April through October supply based on 1975 historical diversions and just reached its critical months supply based on its 1982 diversions. In addition, diversions during the critical year of 1994 would have exceeded the proposed reduced contract quantities which would have been reduced to 75% during that year. Based on a review of monthly diversion records, it is clear that the Company will need to move project water, and in many cases, reschedule base supply, to accommodate its historical diversion pattern with the proposed reduced contract quantity.

It is important to consider the risk associated with the two alternative contract quantities that have been proposed – the 208,600 proposed by the Bureau and the 247,900 proposed by the Company. If the Company's renewed contract quantities prove at some future date to be too low, the result will be removal of lands from agricultural production due to high soil salinity. The removal of land from agricultural production will have significant environmental impacts (loss of waterfowl and wildlife habitat); significant economic impacts to landowners; and significant socio-economic impacts within the Sutter Basin. As the Bureau is well aware, the

reclamation of lands affected by high soil salinity would be complex and expensive. In fact, this reclamation may not be possible without an adequate water supply which the Bureau, under its proposal, would eliminate from the Company's contract.

An alternative approach, as proposed by the Company, would be for the renewed contract quantity to be high enough to allow for flexible and effective water and salt management. In our opinion, the Company's proposal provides an adequate margin of safety with respect to salt buildup in the soils of the Sutter Basin. Given the lack of adequate data on the long-term effects of a substantial reduction of water supply on soil salinity, it is in the best interests of all parties to err of the side of caution.

Finally, an obvious concern from outside interests is the potential for the Company to benefit from excessive contract quantities through water transfers to areas downstream of the Delta. This is obviously not the situation or potential outcome. As we are aware, these transfers are based on reduction of consumptive use; therefore there is no impact on Downstream Water Users. A contract which may represent a small quantity of additional water to the Company, above some theoretical need, is of no risk to the overall system and provides a safety factor against a significant and well-documented risk associated with salinity issues.

Marc Van Camp

MVC/mv
5064/SMWC 04.09.03.DOC