EXHIBIT WR-210

REBUTTAL TESTIMONY OF BRIAN COATS

My rebuttal testimony directly addresses certain issues raised by the Written Testimony of Nick Bonsignore, P.E. (Exhibit WSID122) and Greg Young, P.E. (Exhibit BBID392).

Mr. Bonsignore's statement is divided into four main sections (Supply Calculations, Agricultural Return Flows, Treated Water Discharges and Minimum Instream Flows) along with an introduction and conclusion. I will be responding to the introduction, Supply Calculation and Return Flow areas (sections 2.0 and 3.0).

For Mr. Young's statement, seven (7) conclusions were made of which I will be responding to three: (1) Choice of a local versus global analysis along with reported demands from larger diverters (¶¶7 -25); (5) Excess watershed demands (¶36) and (6) Tributary demands without a corresponding supply (¶37).

The other prominent statement topics by Mr. Bonsignore (sections addressing Treated Water Discharges and Minimum Instream Flows) are addressed in Kathy Mrowka's rebuttal statement while conclusions reached by Mr. Young, namely sections (¶¶7 -35 and 38-42) are addressed in either Jeff Yeazell's or Kathy Mrowka's rebuttal statements.

In the introduction of Mr. Bonsignore's statement, he begins with a general overview of the claimed deficiencies in the Division's supply and demand analysis. The claimed deficiencies include using a globalized demand analysis versus a more localized version, calculation of the supplies available and the impact of temporal and tidal influences on the Delta. Since Mr. Bonsignore discusses these topics in more than one section, for ease of addressing, I will focus on each topic separately.

Bonsignore Statement, Sections 1.0 and 2.0 –-Watershed Boundaries and Demand Analysis

In section 1.1 of Nick Bonsignore's statement, Bonsignore says, "*For purposes of evaluating water available for diverters within the Delta, the SWRCB's methodology is geographically based on the entire Sacramento-San Joaquin-Delta watershed as a whole, or on large subsets of that watershed (Sacramento River watershed plus Delta, or San Joaquin River watershed plus Delta), hereinafter referred to as "combined watersheds". In its analyses of the combined watersheds, the SWRCB's methodology quantifies Supply and Demand in the aggregate on a watershed-wide basis without regard to where a particular component of Supply accrues to the watershed and whether a particular diverter within the combined watershed has access to that Supply component."* (Bonsignore Statement, pg. 1, ¶ 1).

In response to Mr. Bonsignore's statement, I must explain the importance of boundaries and why the boundaries and allocation of demands were chosen differently in 2014 versus 2015.

In order to perform a supply and demand analysis, a boundary must be chosen which defines which supplies and demands are included for comparison. In the case of WSID and BBID, both being within the southern Delta, separate river-specific boundaries can be chosen which include the Sacramento River only with a portion of the Delta, the San Joaquin River with a similar portion of the Delta or a more global boundary which includes the entire Sacramento, San Joaquin and Delta. Since WSID and BBID are located in the southern Delta which had been analyzed in prior droughts as part of the San Joaquin

River watershed, the initial boundary for the supply and demand analysis was chosen as the entire San Joaquin River watershed.

Following the 2014 and prior droughts, the Central and South Delta demands, geographically defined as everything within the legal Delta minus the North Delta area, were allocated to the San Joaquin River watershed. However, in 2015, due to the unusually low water supplies for the San Joaquin River watershed, a pro-rated allocation of the entire Delta demand was pursued which resulted in the majority of Delta demand allocated to the Sacramento River watershed. If the Division had allocated the Central and South Delta demand to the San Joaquin River watershed only as done previously, pre-1914 unavailability notices would have been issued earlier and to a deeper priority as shown in WR-219, which is a chart showing the supply and demand of the San Joaquin River Basin pre-1914 rights as of June 10, 2015, with proportional Delta demand.[1] In the interests of fairness and recognition that the Delta is hydraulically connected to both the Sacramento and San Joaquin Rivers, a global boundary was chosen for the analyses.[2] Dr. Paulsen should agree we are correct in extending the boundary since her testimony indicates that traces of Sacramento River water were detected at BBID's point of diversion. Now that boundaries have been addressed, I will next explain the treatment of demands on a global and local scale.

Bonsignore, in the above statement, is correct that excess localized demand not capable of being met by available supplies should not be assessed as a "water debt" for the remainder of the watershed. Or, in other words, if farmer John needs 10 gallons of water to irrigate his crop but only has 5 gallons available to him, the other 5 gallons needed shouldn't be counted as a debt for anyone downstream since there is no way to get extra water to farmer John.

To address the concern of not treating demands as local "debts," my staff and I prepared Appendix A and B hereto which are supply and demand charts for May and June of 2015 for each of the 10 Full Natural Flow Stations in the Sacramento and San Joaquin River watersheds. Each chart has intersecting lines which represent the individual streams of the Sacramento and San Joaquin River watersheds. The green numbers are the supplies available with the red numbers as reported demands along that particular stream reach. As you move from a green supply, any red demand encountered as you move toward the downstream Delta must be subtracted. All the green and red supply and demand numbers were obtained from our June 2015 publically-available database. I will discuss the resulting numbers from Appendix A and B later in this statement.

As explained in the Rebuttal Statement of Jeff Yeazell (WR-211), Mr. Young's witness statement claims to have removed all the excess demand from each tributary (see Exhibits BBID273 and BBID385) and compared it to the full natural flow available. As Jeff Yeazell's

[1] WR-219 is a true and correct copy of the supply and demand chart generated from the spreadsheet contained in WR-252. WR-252 is a true and correct copy of the 'San Joaquin Basin PRE-14 Supply-Demand Analysis.xlsx' spreadsheet prepared at my direction on June 10, 2015. The spreadsheet has been previously provided to the parties in response to Public Records Act requests.

[2] This is not to say that the Division of Water Rights believes that water users in the South Delta normally would be able to divert Sacramento River water, absent Project operations and/or extreme drought conditions such as those occurring in 2014 and 2015. The Division conducted the distribution of Delta water right demand based on proportional inflows from stream systems only for the availability analysis purposes, not as a legal or policy position of the State Board.

rebuttal statement demonstrates, even with these alleged excess demands removed, there was still not enough water to satisfy all of the Delta demand in June 2015.

Bonsignore Statement, Sections 1.0 and 2.0 –-Full Natural Flows, Daily and Monthly Uses

The next major topic Mr. Bonsignore addresses is the use of full natural flow in the supply and demand analysis. He first refers to the lack of downstream contributions added to the supply of daily FNF used in our analysis.

Mr. Bonsignore states in section 1.2, "*The "point of reckoning" is the FNF station location. Thus, FNF does not include any contributions to the river that occur downstream of the FNF station location."* (Bonsignore Statement, pg. 2, ln. 3-4) Mr. Bonsignore is correct that no downstream contributions contributions are included within the FNF value, but neither are **downstream depletions** included within the FNF value. The FNF value only takes into account upstream factors. Natural downstream demands such as evaporation, riparian evapotranspiration as well as seepage losses occur irrespective of location within the watershed and occur alongside any contributions. In performing the supply and demand analysis, SWRCB staff did not subtract these depletions from the supply forecasts, which is of benefit to the diverters.

Mr. Bonsignore then states there is an, *"Inconsistency in how the SWRCB quantifies daily FNF Supply versus forecasted monthly FNF Supply."* (Bonsignore Statement, pg. 3, ¶ 5).

Due to Mr. Bonsignore's misunderstanding of how we use the daily FNF, I shall explain: Daily FNF values are used to determine which B120 forecast, oftentimes the 50% or 90% exceedance, to follow at the beginning of the unavailability season. DWR provides many supply exceedance forecasts, but in order to choose one for unavailability analysis, we must use real-time supply information (such as Daily FNF) as a qualifier to determine which forecast is tracking closest to reality. *Daily FNF is not normally used as a total supply for an unavailability determination.* An exception would be in the case where the Daily FNF is greater than the forecasted B120 value, in which case we use the Daily FNF trend as the total supply since a larger supply is of more benefit to water right holders. Towards the end of the irrigation season, and prior to any precipitation events, we sometimes use the Daily FNF trend for release consideration due to, again, the oftentimes higher Daily FNF trend value relative to the B120 summer-fall forecasts which are not normally updated after May of each year.

Then in section 2.2 of Mr. Bonsignore's statement titled, "*Consideration of Unimpaired Flow (UF) Watersheds as Sources of Supply,"* he states, *"For purpose of computing daily Supply, the SWRCB methodology relies solely on daily FNF data for the 10 FNF stations. It does not include in the calculation of daily Supply any unimpaired runoff from the 13 UF subbasins. The SWRCB did consider monthly flow contributions from 8 of 13 UF subbasins for purposes of making adjustments to DWR's Bulletin 120 forecasted monthly FNF values, but made no such adjustment to account for flows in these UF subbasins in its daily reckoning of FNF."* (Bonsignore Statement, pg. 10, ¶ 2).

Mr. Bonsignore is correct that no adjustment was made regarding the UF subbasins. This is due to the lack of official daily unimpaired flow data for these UF subbasins. Since the FNF station values take into account upstream depletions such as evaporation and evapotranspiration,

any official daily unimpaired flow data added from the UF subbasins, which are separate from the FNF station values, would need a corresponding adjustment for the area's depletions.

In summary of the supply concerns, Mr. Bonsignore states, "*The SWRCB's methodology for quantifying FNF and UF Supply has a systemic deficiency that results in overestimates of Demand when evaluating the combined watersheds. The method is therefore inappropriate for this purpose, but to the extent it would be used it is my recommendation that the excess SWRCB Demands shown in the respective subtotals and grand totals in* ***Tables 2-4 and 2-5*** *be deducted from the SWRCB's June WRUDS spreadsheet Demand for water availability analyses for the combined watersheds.*" (Bonsignore Statement, pgs. 12,13).

In our localized supply and demand analysis (**Appendices A** and **B**), discussed in further detail below, we removed the excess demands not satisfied by local supplies as Mr. Bonsignore recommends. The net result is water was still unavailable for both WSID and BBID in June 2015.

In section 2.1.3 of Mr. Bonsignore's statement, he states, "*With reference to* ***Figures 2B to 2H****, for each FNF basin in each month, wherever the accumulated SWRCB Demand within the basin is greater than the FNF for the basin, the amount of SWRCB Demand in excess of FNF could not have been satisfied, and hence there is no basis to assume that the excess SWRCB Demand could have occurred. If the excess SWRCB Demand within a particular FNF basin could not have been satisfied by the FNF basin Supply, then it should not have been included in the computation of aggregated SWRCB Demand for the Sacramento-San Joaquin-Delta combined watersheds. And yet the SWRCB's methodology does exactly that."* (Bonsignore Statement, pg. 8, ¶ 4).

Mr. Bonsignore's Figures 2B to 2H are monthly supply and demand bar charts for subbasins depicted in Figure 2A which include the watershed area upstream of the FNF location. However, since the correct demand boundary for WSID and BBID must extend downstream (as explained earlier), in contrast to Figure 2A, due to the priority of downstream hydraulically-connected rights, Figures 2B to 2H are misleading and irrelevant. Instead, Division staff developed a similar analysis incorporating localized demand in Appendices A and B.

As shown in Appendix A, which is the May 2015 supply and demand analysis for the Sacramento, San Joaquin and Delta watershed used for WSID's evaluation, an excess of 426 cfs is available **provided** a 40% return flow credit is applied to the reported Delta demand at the request of the Delta stakeholders. Without the 40% return flow credit, which does not have any data to support its use, the revised senior Delta demand through a 1913 priority would be 2,683 cfs vs the 1,610 listed. Even at the 2,683 cfs demand level, there is a shortage of 647 cfs (2,683 cfs of demand - 2,036 cfs of supply) which indicates there is not enough supply to satisfy all the reported Delta demand through a 1913 priority level. For the June 2015 evaluation for BBID as shown in Appendix B, there is not enough supply to satisfy the Delta demand through a 1913 priority level with or without the 40% Delta return flow credit; water supply was that low.

Bonsignore Statement, Section 1.3 -–Residence Time of Delta Water

In section 1.3 of Mr. Bonsignore's statement titled, "Deficiencies in the SWRCB's Supply Methodology," he states, "*In addition to water entering the Delta from the rivers, water moves into Delta channels from the west with the incoming tide and moves out of those channels with*

the outgoing tide, but there is always water *in the channels and this back and forth movement results in residence times for the water in the Delta on the order of several months. Because the SWRCB's methodology does not consider this temporal aspect to the occurrence of water in the Delta, or recognize the continued presence of water in Delta channels, it is not the correct tool for evaluating Delta water availability.* (Bonsignore Statement, pg. 3, ¶ 2).

Mr. Bonsignore makes this statement with no support or analysis. It appears to related to testimony submitted by Mr. Burke and Dr. Paulsen, addresses residence times in the Delta. The Rebuttal Statement of Les Grober (WR-213) addresses residence times as discussed by Mr. Burke and Dr. Paulsen. Mr. Grober concludes that residence times were an insufficient indicator of water availability for WSID and BBID during 2015.

Bonsignore Statement, Section 3.0 -– Agricultural Return Flows

In the next section, Mr. Bonsignore discusses the Division's inclusion and exclusion of agricultural return flows. Agricultural return flows are excess water returned to the watershed after being applied for irrigation. Many irrigation districts during the drought have implemented policies to reduce return flow with tailwater recirculation systems or outright restrictions as discussed below.

Monthly return flow was added to the 2015 San Joaquin River supply using the 1977 Dry Year report estimates using the same monthly percentages outlined in the 1977 Dry Year report. No return flow adjustments were added to the Sacramento River supply, as they were not considered in the 1977 Dry Year report (see pg. 6 of the 1977 Dry Year report). Further evidence, (see WR-249 [true and correct copy of GCID's Water Management and Conservation Policy], and WR-250 [true and correct copy of Princeton-Cordora-Glenn ID Supplemental Statement of Water Diversion and Use for 2014]) submitted by Glenn-Colusa ID and Princeton-Cordora-Glenn ID, two prominent upper Sacramento River diverters, suggest that the Sacramento River receives minimal return flows, as tailwater is often restricted or recirculated for reuse.

In any event, any additional return flow supplies would be countered with natural depletion losses, since, as Mr. Bonsignore points out, "*FNF does not include any contributions to the river that occur downstream of the FNF station location.*" (Bonsignore Statement, pg. 2, ln. 3-4).

In the next section addressing agricultural return flows, Bonsignore begins by stating, "*The SWRCB's methodology does not consider certain agricultural return flows that occurred in 2015 - The SWRCB's quantification of Supply does not include consideration of any return flows in the Sacramento River system, even though it is a well-established that many water users in the watershed rely on return flows from upstream water users for their Supply.*" (Bonsignore Statement, pg. 14, ¶ 2).

According to Glenn-Colusa ID's 2014 Water Management & Conservation Policy (WR-249), for a water year type with a greater than 25% reduction in water supply, no field spillage is allowed from April 1 to October 31 and all tail boxes are required to be sealed. Similarly,

Princeton-Cordora-Glenn ID, another large upper Sacramento diverter, indicated on their 2014 use report (WR-250) that "lands were served by groundwater and recirculated tail water."

Unless Mr. Bonsignore has evidence indicating quantity, location and temporal data of the 2015 return flows, Division staff were correct in omitting Sacramento River return flows as a substantial source of supply.

Mr. Bonsignore then focuses on the San Joaquin River system for months outside those of the WSID and BBID unavailability determination with the following quote, "*The SWRCB's methodology does not accurately account for return flows it did consider - In the San Joaquin River system the SWRCB's methodology assumes that return flows occurred only in the months of April through June of 2015, however, based on information I have reviewed and analyzed return flows did accrue to the San Joaquin River system in the months of July through October 2015.* (Bonsignore Statement, pg. 14, ¶ 3).

While possible, the substantive issue here is whether water was available for WSID beginning in May of 2015 and for BBID in June of 2015; not in July through October.

Regarding the San Joaquin River watershed, according to the Newman gage, which is located just above the Merced River confluence but downstream of the substantial exchange contractor irrigation diversions, no appreciable increases or quantities of flow were observed from May 2015 through September 2015 (WR-251 is a true and correct copy of San Joaquin River above Merced River (Newman) flow data from May 3, 2015, through 9/30/3015); quite the contrary, the flows actually *decrease*, to an average of just 15 cfs. If San Joaquin River return flows, during a severe drought, were so substantial as to merit acknowledgement, we should see substantial increases in flows, yet no evidence has been submitted to support that argument.

Mr. Bonsignore then states, "*The SWRCB's methodology considers certain return flows in an inconsistent manner - The SWRCB methodology considers contributions from certain return flows in its forecast of monthly Supply, but does not include these contributions in its daily reckoning of FNF Supply. It is unclear why the SWRCB includes return flows for forecasting monthly Supply but does not include them in its reckoning for daily Supply."* (Bonsignore Statement, pg. 14, ¶ 4).

As was explained above, any daily source of return flow must be quantified and localized with evidence supporting it as return flow versus any other source type (i.e. reservoir release, natural accretions already addressed using the 2007 DWR Unimpaired Flow report, etc.). In addition, any daily FNF adjustment for return flows must be countered by accretion losses for the area downstream of the FNF location for a net adjustment to supply. Mr. Bonsignore offers no data in support of this point.

In the last bulleted point, Mr. Bonsignore states,"*The SWRCB's methodology does not consider spatial aspects of return flows – By ignoring spatial aspects of where return flows occur, the SWRCB's methodology incorrectly assumes that these flows are available to diverters that are located upstream of where the return flows are released. A fundamental problem with the SWRCB's methodology is that it only considers volume and priority, not when and where the*

water occurs. An appropriate water availability analysis would allocate Supply based on both location and time." (Bonsignore Statement, pg. 14, ¶ 4).

As demonstrated in our localized network analysis using the June WRUDS dataset (**Appendices A** and **B**), the end result is the same; water was not available to WSID as of May 1, 2015 without the 40% Delta return flow credit nor WSID or BBID as of June 12, 2015.

In section 3.1, Mr. *Bonsignore states, "Return flows to the Delta are assumed to be 40 percent of senior Demand (riparian plus pre-1914) for the months of March through September."* (Bonsignore Statement, pg. 15, blt. 2).

To address the issue of Delta diverters pumping water off the irrigated islands resulting in a net consumptive quantity less than that diverted, the Division agreed to apply a 40% reduction in reported Delta demand as suggested by stakeholders representing San Joaquin River interests prior to June 2015. No data was provided to support the use of the 40% reduction factor, nor water quality data comparing the diverted water to that of the excess pumped off the island.

In other words, for a true reduction in demand to be warranted, as the result of pumping excess diverted water back into the source, the returned water must be of the same water quality or better than that diverted so that it is useable by another party. For example, if a farmer pumped water from the Delta with a saline content compatible with irrigation but returned excess water with a high and incompatible salt content, that returned water should not be credited towards the 40% demand reduction since no one can use it without treating it.

Despite the lack of data to support the 40% Delta return flow credit, the Division used the full 40% value in its analysis at the request of San Joaquin River stakeholders, and to the benefit of those stakeholders.

In section 3.1.1 titled, *"Daily FNF not Adjusted for Return Flows,"* Mr. Bonsignore states,*"I have not found anything in the information provided by the SWRCB that explains why adjustments were made to forecasted monthly FNF but not to Daily FNF."* (Bonsignore Statement, pg. 15, ¶ 3, lns. 8-10).

As stated previously, the Daily FNF was used to evaluate which monthly B120 supply forecast to use, whether it be the 50% or 90%. While we could have adjusted the Daily FNF levels with a daily-averaged return flow credit, we would also have to counter with a daily-averaged depletion losses. Since the unadjusted Daily FNF was trending between the 50% and 90% forecasts, and we based our unavailability decision using the more generous 50% supply forecast, any net adjustments to the Daily FNF, after taking into consideration downstream depletion losses, would unlikely be greater than the next higher B120 supply forecast (25% exceedance).

Mr. Bonsignore then states in Section 3.2, *"The water supply available to satisfy pre-1914 demands in the basin is equal to the total residual natural supply after riparian demands in the basin are satisfied plus the return flow from the use of ground and project (stored or imported) water."* [Emphasis added] (Bonsignore Statement, pg. 15, ¶ 5). He goes on to say,*"While agricultural irrigation operations may have changed since 1977, with more water*

users and irrigation districts implementing tailwater capture and reuse systems, irrigation return flows still occur in the San Joaquin River system." (Bonsignore Statement, pg. 15, ¶ 8).

As discussed earlier, if San Joaquin River return flows were so substantial, especially in the case of the exchange contractor operations in the Upper San Joaquin River, why is there no evidence of a large return flow component, registered at a downstream gage and available for use by others (see WR-251)? While return flow may still occur, if they are small in comparison to the overall water supply, the benefit is minimal. Again, proof of the quantity, location and original source is necessary for additional amounts above the percentages used in the 1977 analysis. In addition, any downstream depletion losses, which are not a reported demand, would need to be included to determine if any net supply benefit is warranted.

Mr. Bonsignore then describes example cases of water right holders, such as Modesto Irrigation District, in Section 3.2.1 where canal system spillage resulted in a minor contribution.

Using Mr. Bonsignore's Table 3-1 as provided, we see that 1,668 acre-feet was "spilled through Canal System" for May 2015 and 1,408 acre-feet in June 2015. These values represent an average 27 cfs for May and 24 cfs for June. As was stated previously, a 10% return flow credit (based on the percentages outlined in the 1977 report) was added to the total San Joaquin River watershed supply using the reported demand. For May's reported demand of 97,000 acre-feet, a credit of 9,700 acre-feet (10%) was added while June's demand of 135,000 acre-feet resulted in a 13,500 acre-feet credit. On a cfs basis, the 9,700 acre-feet May credit calculates to a daily average of 158 cfs with the same calculation for June resulting in a 227 cfs rate.

While these 158 cfs and 227 cfs credits are for the May and June global watershed versus a single party like Modesto Irrigation District, the localized credits (27 cfs and 24 cfs) would already be included in the global San Joaquin River watershed numbers (158 cfs and 227 cfs).

In addition, as noted previously, we need to counter any return flow credits with downstream depletion losses, which are present but not reported by any water right holder, resulting in a net lower credit, possibly even a net loss for an accurate representation.

Unfortunately, in the case of Oakdale Irrigation District, Mr. Bonsignore fails to supply a return flow amount for 2015, since the monthly breakdown for 2015 data is unavailable. Therefore, we cannot subtract any claimed credit from the May and June global 158 cfs and 227 cfs return flow adjustments calculated above. Similarly, we would need to include downstream depletion losses of Oakdale ID's point of diversion along the Stanislaus River as a debit against any return flow adjustments.

For the Colusa Basin Drain and Ridge Cut Slough return flow analysis Mr. Bonsignore addresses, he quotes a large disparity between the cited May 1977 and June 1977 value (28,000 and 83 acre-feet), along with acknowledged improvements in irrigation practices since 1977. When you take into account the recent operational restrictions of the cited upper Sacramento River irrigation districts (WR-249 and WR-250), official return flow data is necessary to augment the supply available.

Mr. Bonsignore then quotes in the second paragraph under 3.3.1, '*To the extent that the gates were open in 2015 CBD flows would have accrued to the Sacramento River, but the SWRCB methodology does not account for this source of Supply."*

To consider the 2015 Colusa Basin Drain flows as a supply, a quantity and time must be provided, supported by data, along with proof the flows are abandoned and available for appropriation. No such evidence was supplied.

Mr. Bonsignore then refers to the diversion of flows into Ridge Cut Slough and states, *"Also, it appears that there were periods in 2015 when CBD flows were being directed into Ridge Cut Slough from upstream of the control structure; Ridge Cut Slough accrues to the Yolo Bypass. The data as posted (which I understand is unofficial) indicates that flows were in the range of about 200 cfs in March, 0 to about 100 cfs in April, 0 to about 150 cfs in portions of May, and generally in excesses of 100 cfs starting around the first of August and continuing thereafter (**Attachment #9** is a CDEC graph showing 2015 Ridge Cut Slough flows). Based on my conversation with DWR staff, gaps in the record in early May and from mid-June to early August are likely attributable to low flows in Ridge Cut Slough that are below DWR's instrumentation.*[12]

Since the range provided by Mr. Bonsignore starts with 0 cfs and is unofficial data with gaps during the May and June time period, Division staff stands by the omission of these supply flows.

In section 3.3.2 titled,"Omission of Irrigation Tailwater as Source of Supply," Mr. Bonsignore states, "*There are a number of diverters in the Sacramento River basin that hold appropriative rights or have filed claims of right naming "drains" and/or "canals" as sources of water diverted and used under those rights. The SWRCB's methodology counts Demand under these rights in its water availability analysis. However, by omitting return flows from the analysis the methodology does not account for the Supply needed to support these Demands. This means that Supply is underestimated (or Demand is overestimated) in the SWRCB's aggregated analyses of water availability for the Delta.*

With respect to the Sacramento River watershed, as has been rebutted frequently, the large irrigation districts are quoted as restricting tailwater runoff during a dry year. If there are substantial tailwater supplies, there should be substantial 2015 data, quantified and localized, to include in the supply and demand analysis, but there is not.

Regarding the issue of the Delta return flow supply, in section 3.4 Mr. Bonsignore says,

"*The SWRCB's methodology assumes that, for purposes of adjusting DWR's forecasted monthly FNF, return flows in the Delta are assumed to be 40 percent of senior Delta Demand in the months of March through September. This source of Supply occurs in the Delta and thus it is available only to Delta diverters. It is not available to diverters on tributaries to the Delta that are upstream of tidal influences. However, the SWRCB's methodology does not distinguish Supply and Demand spatially."*

At the request of San Joaquin River stakeholders who met with the Division staff in May of 2015, it was proposed to include a 40% reduction in reported demand to account for the

Delta's "unique situation" where diverters are constantly pumping water off the islands resulting in an estimated 60% net consumption of the amount diverted. While no evidence was offered to support this percentage, Division staff used it to increase the supply available to both the larger watershed boundary as noted and to also reduce the reported Delta demand to 60% of what was reported. Again, this was to the Delta stakeholders' benefit, including WSID and BBID.

Rebuttal Statement to Witness Statement of Greg Young, P.E. –

Mr. Young indicates in his statement that, "The Delta, as a unique geographic area that receives inflow from both the Sacramento and San Joaquin River (and tributary) watersheds, would best be analyzed for water availability by evaluating the supplies available to the Delta in comparison to the demands within the Delta to more accurately determine water availability." (Young Statement, pg. 6, ln. 17-21).

In the above statement, Mr. Young argues that the Delta should be analyzed separately from the global boundary that Division staff used. As demonstrated by Appendix B and WR-219 (and WR-252), if you assign all of the Central and South demand (as was done in 2014 and in prior years), to the San Joaquin River supplies only, a much larger number of claimed rights would have been issued a notice in June 2015**.**

Due to the priority system of water rights, any hydraulically connected area must be included within a supply and demand analysis for equitable evaluation. To determine what parties have access to limited water resources, and which parties receive unavailability notices, the supply and demand boundary must include parties in the same hydraulically connected watershed. As outlined above, for WSID and BBID, that analysis requires the extension of the boundary to the global Sacramento and San Joaquin watersheds, given that a San Joaquin-only analysis would only result in deeper supply cuts and Dr. Paulsen has confirmed that Sacramento River water enters the BBID and WSID diversion area.

On page 9 of Mr. Young's statement, he indicates that we should have reduced the San Joaquin Exchange Contractor demand, in contrast to their self-reported answer to our informational order, since they received less water in 2015 than 2014. Since June 12, 2015, the Division has adjusted our demands for the top 90% of statement holders, which includes the San Joaquin Exchange Contractors, based on their monthly reported uses under their claims of right. Any allegations of misreporting should be directed to the respective party.

Young's Discussion of the San Joaquin Exchange Contractors:

Shortly after the March 6, 2015 deadline for the initial response to the February 2015 informational Order, I contacted a representative of the San Joaquin Exchange Contractors since they failed to provide a projected 2015 estimate of demand. The San Joaquin River Exchange Contractors Water Authority representative verbally indicated their 2014 reported uses would best represent 2015 projected uses.

Young's Discussion of Excess Demands:

Mr. Young then indicates on pg. 23 of his statement that it is physically not possible for tributary demands to be met by FNF when sufficient FNF does not exist and the excess demands should be removed. In response, and as discussed in the Rebuttal Statement of Jeff Yeazell, the Division prepared Appendices A and B which localize demands with the available local supply. As you can see, even with the excess demands removed for both the Sacramento River and San Joaquin River watershed tributaries,

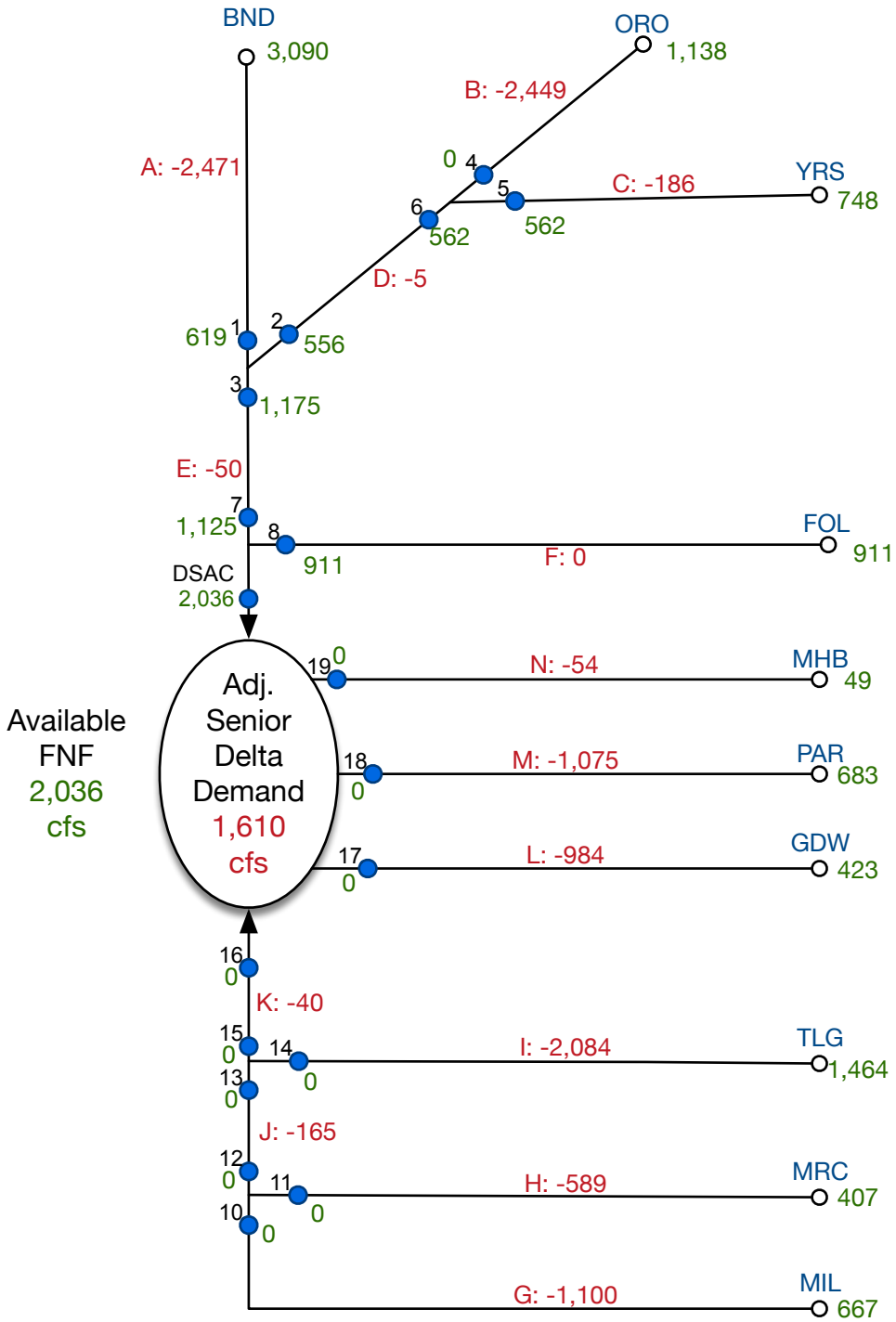
there is insufficient net water available for WSID (without the 40% Delta return flow credit) and BBID's points of diversion in the Delta for the May and June 2015 periods.

Young's Discussion of Additional UF Supplies:

Lastly, Mr. Young states on pgs. 23 and 24 that additional unimpaired flow should have been added from UF basins 12, 15, 20, 21 and 24 to supplement supply for demands that had no access to the FNF used. We didn't incorporate the additional UF basin flows due to insignificant value. As I explained in my witness statement on the use of the 1977 year type for the unimpaired flow adjustments from the 2007 DWR report, which reference the UF basins 12, 15, 20, 21 and 24, we find that an additional 2,000 acre-feet (using 1977 as the referenced year type) per month would be realized. On a daily basis, using an average of 30 days per month, this equates to 66 acre-feet per day or 33.6 cfs. Since the localized supply and demand charts provided in Appendix A (without the 40% return flow credit) and B show a net demand in the Delta well in excess of the 33.6 cfs level, the end result is no change in the unavailability determination for WSID and BBID.

Appendix A
Localized Supply/Demand Network
May Statement Demand

Values in Cubic Feet per Second (cfs)



Localized Supply/Demand Network Summary
May Statement Demand

	Point/Segment	Demand (AF)	Demand (cfs)	Available 90% Exceedance FNF Forecast (cfs)
A - Sacramento R. BND to Confluence with Feather R.				
Starting FNF	BND			3,090
Statement Demand	A	151,947	2,471	
Remaining FNF	1			619
B - Feather R. ORO to Confluence with Yuba R.				
Starting FNF	ORO			1,138
Statement Demand	B	150,576	2,449	
Remaining FNF	4			0
C - Yuba R. YRS to Confluence with Feather R.				
Starting FNF	YRS			748
Statement Demand	C	11,452	186	
Remaining FNF	5			562
D - Feather R. from Yuba R. Confluence to Sac. R.				
Starting FNF	6 = 4 + 5			562
Statement Demand	D	328	5	
Remaining FNF	2			556
E - Sacramento R. from Feather R. Confluence to Delta				
Starting FNF	3 = 1 + 2			1,175
Statement Demand	E	3,070	50	
Remaining FNF	7			1,125
F - American R. FOL to Confluence with Sacramento R.				
Starting FNF	FOL			911
Statement Demand	F	0	0	
Remaining FNF	8			911
DSAC - Available FNF into Delta From Sacramento Side	DSAC = 7 + 8			**2,036**
G - San Joaquin R. from MIL to Merced R. Confluence				
Starting FNF	MIL			667
Statement Demand	G	67,666	1,100	
Remaining FNF	10			0
H - Merced R. from MRC to San Joaquin R. Confluence				
Starting FNF at MRC	MRC			407
Statement Demand	H	36,223	589	
Remaining FNF	11			0
I - Tuolumne R. from TLG to San Joaquin R. Confluence				
Starting FNF	TLG			1,464
Statement Demand	I	128,156	2,084	
Remaining FNF	14			0

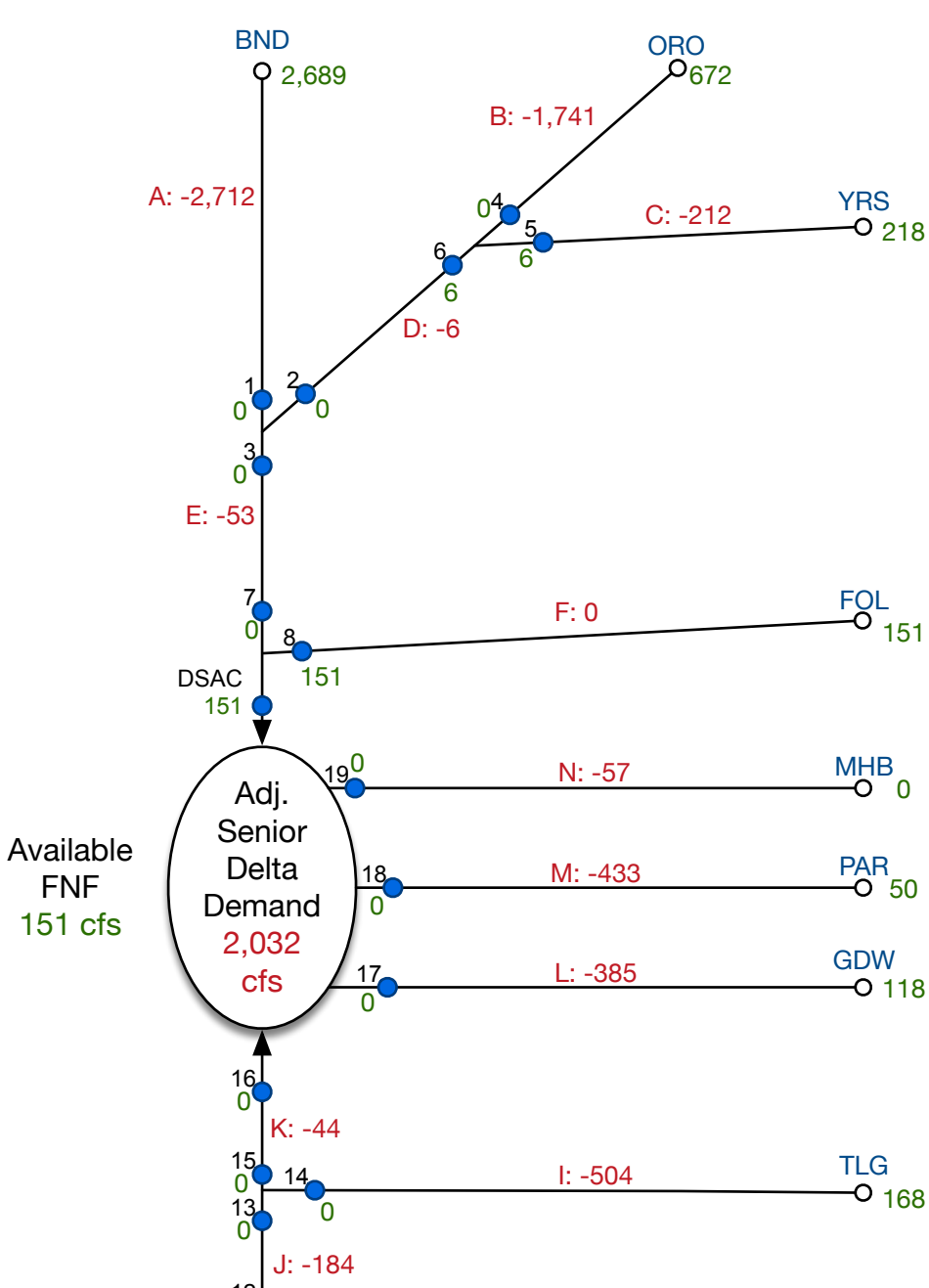
Localized Supply/Demand Network Summary
May Statement Demand

	Point/Segment	Demand (AF)	Demand (cfs)	Available 90% Exceedance FNF Forecast (cfs)
J - San Joaquin R. from Merced R. to Tuolumne R.				
Starting FNF	12 = 10 + 11			0
Statement Demand	J	10,146	165	
Remaining FNF	13			0
K - San Joaquin R. from Tuolumne R. to Delta				
Starting FNF	15 = 13 + 14			0
Statement Demand	K	2,462	40	
Remaining FNF	16			0
L - Stanislaus R. from GDW to Delta				
Starting FNF	GDW			423
Statement Demand	L	60,516	984	
Remaining FNF	17			0
M - Mokelumne R. from PAR to Delta				
Starting FNF	PAR			683
Statement Demand	M	66,127	1,075	
Remaining FNF	18			0
N - Cosumnes R. from MHB to Delta				
Starting FNF	MHB			49
Statement Demand	N	3,306	54	
Remaining FNF	19			0
DSJ - Available FNF into Delta From San Joaquin Side	DSJ = 16 + 17 + 18 + 19			**0**
TOTAL - Total Available FNF into Delta	**TOTAL = DSAC + DSJ**			**2,036**
Delta Statement Demand Through 1913		165,001	2,683	
With 40% Return Flow Adjustment			**1,610**	

Demand data obtained from Exhibit WR-75
Unadjusted FNF Forecasts from Exhibit WR-72

Appendix B
Localized Supply/Demand Network
June Statement Demand Through 1913 Priority

Values in Cubic Feet per Second (cfs)



Localized Supply/Demand Network Summary
June Statement Demand Through 1913 Priority

	Point/Segment	Demand (AF)	Demand (cfs)	Available 90% Exceedance FNF Forecast (cfs)
A - Sacramento R. BND to Confluence with Feather R.				
Starting FNF	BND			2,689
Statement Demand	A	161,378	2,712	
Remaining FNF	1			0
B - Feather R. ORO to Confluence with Yuba R.				
Starting FNF	ORO			672
Statement Demand	B	103,572	1,741	
Remaining FNF	4			0
C - Yuba R. YRS to Confluence with Feather R.				
Starting FNF	YRS			218
Statement Demand	C	12,618	212	
Remaining FNF	5			6
D - Feather R. from Yuba R. Confluence to Sac. R.				
Starting FNF	6 = 4 + 5			6
Statement Demand	D	354	6	
Remaining FNF	2			0
E - Sacramento R. from Feather R. Confluence to Delta				
Starting FNF	3 = 1 + 2			0
Statement Demand	E	3,137	53	
Remaining FNF	7			0
F - American R. FOL to Confluence with Sacramento R.				
Starting FNF	FOL			151
Statement Demand	F	0	0	
Remaining FNF	8			151
DSAC - Available FNF into Delta From Sacramento Side	DSAC = 7 + 8			**151**
G - San Joaquin R. from MIL to Merced R. Confluence				
Starting FNF	MIL			302
Statement Demand	G	99,739	1,676	
Remaining FNF	10			0
H - Merced R. from MRC to San Joaquin R. Confluence				
Starting FNF at MRC	MRC			134
Statement Demand	H	24,065	404	
Remaining FNF	11			0
I - Tuolumne R. from TLG to San Joaquin R. Confluence				
Starting FNF	TLG			168
Statement Demand	I	29,972	504	
Remaining FNF	14			0

Localized Supply/Demand Network Summary
June Statement Demand Through 1913 Priority

	Point/Segment	Demand (AF)	Demand (cfs)	Available 90% Exceedance FNF Forecast (cfs)
J - San Joaquin R. from Merced R. to Tuolumne R.				
Starting FNF	12 = 10 + 11			0
Statement Demand	J	10,946	184	
Remaining FNF	13			0
K - San Joaquin R. from Tuolumne R. to Delta				
Starting FNF	15 = 13 + 14			0
Statement Demand	K	2,621	44	
Remaining FNF	16			0
L - Stanislaus R. from GDW to Delta				
Starting FNF	GDW			118
Statement Demand	L	18,724	315	
Remaining FNF	17			0
M - Mokelumne R. from PAR to Delta				
Starting FNF	PAR			50
Statement Demand	M	25,781	433	
Remaining FNF	18			0
N - Cosumnes R. from MHB to Delta				
Starting FNF	MHB			0
Statement Demand	N	3,376	57	
Remaining FNF	19			0
DSJ - Available FNF into Delta From San Joaquin Side	DSJ = 16 + 17 + 18 + 19			**0**
TOTAL - Total Available FNF into Delta	**TOTAL = DSAC + DSJ**			**151**
Delta Statement Demand Through 1913		201,480	3,386	
With 40% Return Flow Adjustment			2,032	

Demand data obtained from Exhibit WR-77
Unadjusted FNF Forecasts from Exhibit WR-72