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5
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BETHANY IRRIGATION DISTRICT

8 BEFORE THE

9 CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

10 ENFORCEMENT ACTION ENFO1949 DRAFT
CEASE AND DESIST ORDER REGARDING
11 UNAUTHORIZED DIVERSIONS OR
THREATENED UNAUTHORIZED
12 DIVERSIONS OF WATER FROM OLD RIVER
IN SAN JOAQUIN COUNTY

SWRCB Enforcement Action ENF01951
and ENF01949

WRITTEN TESTIMONY
OF GREG YOUNG, P.E.

13 ENFORCEMENT ACTION ENFO1951-
14 ADMINISTRATIVE CIVIL LIABILITY
COMPLAINT REGARDING UNAUTHORIZED
15 DIVERSIONS BY BYRON-BETHANY
IRRIGATION DISTRICT

16
17 I, Greg Young, submit this written testimony on behalf of Byron Bethany Irrigation
18 District (BBID) and West Side Irrigation District (WSID) in the above referenced enforcement
19 actions.

20 1. I am a California registered civil engineer and a co-founder of Tully & Young,
21 Inc., a specialized water resource consulting firm in existence since August of 2004. I have a
22 Bachelor of Science degree in Agricultural Engineering from California Polytechnic State
23 University. I have over 25 years of extensive experience in strategic water resource planning.
24 Through leadership and involvement in numerous projects focused on water asset management,
25 water demand analysis and projection, and water availability analyses throughout California, I
26 have developed valuable skills to quickly evaluate existing data, assess opportunities, and
27 comprehensibly characterize existing and future water supplies and related demands for
28 agricultural, municipal and special interest clients. **Exhibit BBID248** is a true and correct copy

1 of my CV.

2 2. I have personal knowledge of the facts stated herein and could testify competently
3 thereto if called as a witness, except as to matters stated on my information and belief, and as to
4 such matters, I am informed the same to be true.

5 3. I was retained in these matters by BBID and WSID to (1) review and understand
6 the State Water Resources Control Board's (SWRCB) analysis of water availability related to
7 curtailments and enforcement orders issued by the SWRCB in 2015 and (2) determine whether
8 the methodology used for the SWRCB's analysis was reasonable or scientifically supportable.

9 4. In order to perform the tasks requested, I spent significant time reviewing the
10 Excel spreadsheets and other files produced by the SWRCB in response to the district's public
11 records act request. I performed independent research and analysis. I also attended the depositions
12 of SWRCB staff. The information gained from these witnesses during their depositions was
13 critical to my understanding of the SWRCB's water availability analysis and curtailment effort.
14 Although I had previously looked at the spreadsheets that the SWRCB had posted to its website
15 related to curtailment, I could not understand the methodology contained in those spreadsheets
16 without further explanation during the depositions and considerable analysis of my own. During
17 the depositions I also learned that the SWRCB did not perform a specific water availability
18 analysis for either WSID or BBID that relates to the specific points of diversion for these two
19 diverters. Rather, the SWRCB relied on a global analysis to support its curtailment decisions and
20 the enforcement actions.

21 5. While the compiled spreadsheet models prepared by SWRCB staff are
22 sophisticated and contain a tremendous amount of information, they fail to account for the reality
23 of how water moves through the Sacramento-San Joaquin watersheds and is actually available to
24 water right diverters. My primary conclusions regarding the errors in the SWRCB methodology
25 are: (1) the SWRCB included the demands of significant groups of diverters in its water
26 availability analysis even though the demands could not rightfully be charged against Full Natural
27 Flow; (2) the SWRCB failed to effectively use 2015 water use data submitted to the SWRCB by
28 diverters to adjust its forecasts of water demands; (3) the SWRCB included duplicate demands for

1 numerous water rights in the Delta, thereby inflating the demand values used to assess water
2 availability for purposes of the curtailment notices and enforcement orders; (4) the SWRCB failed
3 to adjust projected demands based on the anticipated reduction in Delta demands associated with
4 the SWRCB's "Voluntary Cutback Program for Delta Riparian Water Rights"; (5) the inclusion
5 in the SWRCB's water availability analysis demands from watersheds far in excess of the supply
6 available to satisfy demands in those watersheds; (6) the SWRCB's inclusion of demands from
7 tributary watersheds without including the corresponding supply from that watershed in the
8 SWRCB's forecasts of water availability; and (7) general data entry mistakes and adverse impacts
9 associated with averaging demands with these embedded mistakes. Ultimately, if the SWRCB
10 had performed these reasonable and necessary adjustments to its water availability analyses, the
11 SWRCB should have determined that adequate water supplies existed at both BBID and WSID's
12 points of diversion during the times that the SWRCB claims water was unavailable to satisfy
13 BBID and WSID's rights.

14 6. In response to an information request submitted by BBID, the State Water
15 Resources Control Board ("SWRCB") provided a large number of electronic files in October
16 2015 (the "October PRA"), including many PDF versions of graphics and figures, and several
17 functional Excel files represented as containing the SWRCB's assessment of water availability.
18 Among the October PRA files was an Excel file titled "20150610_sacsjcombined.xlsx" (accessed
19 through the following folder sequence in the October PRA file organization: "Water Availability"
20 – "2015" – "20150612_Notice" as shown in **Exhibit BBID249**). This particular spreadsheet is
21 hereafter referred to as "0610-Combined." The 0610-Combined includes several unique
22 worksheets and one graphic, presented on various named "tabs" within the file, as shown in a
23 picture of my computer screen (see **Exhibit BBID250**). Based on my analysis, I have determined
24 that these tabs contain the foundational water rights data as well as the analysis and the
25 representative visual graphic prepared by the SWRCB staff and subsequently used by staff to
26 make certain water rights determinations resulting in the issuance of curtailment notices and the
27 enforcement orders against BBID and WSID. (See *Administrative Civil Liability Complaint In*
28 *the Matter of Unauthorized Diversion by Byron-Bethany Irrigation District – ENFO1951* ("BBID

1 ACL”), §§ 22-23; *Cease and Desist Order In the Matter of Unauthorized Diversion by West Side*
2 *Irrigation District* –ENFO1949 (“WSID CDO”), §§ 22-23.) The 0610-Combined was the
3 primary focus of my assessment, though other spreadsheets provided in the October PRA were
4 also assessed and identified later in this testimony as relevant to particular findings.

5 7. Based upon my assessment of 0610-Combined, I determined that the tab entitled
6 “Senior Chart” presents a visual representation used by the SWRCB to compare supply and
7 demand conditions on or about June 10, 2015. (See 2015 Combined Sacramento/San Joaquin
8 River Basin Senior Supply/Demand, **Exhibit BBID251**.) The Senior Chart includes (1) certain
9 actual and forecast water supply conditions, and (2) certain pre-1914 water right and riparian
10 demands for surface water supplies (hereafter referred to as “Senior Demands”). The other tabs
11 in 0610-Combined include water rights data and results of computational analyses used to derive
12 the values represented on the Senior Chart. From my experience in preparing water supply and
13 demand analyses, a comparison of water supply and demand requires that the foundational data
14 for demand reflect the demand that would use the represented water supply during the time that
15 the supply is available, and it should not include demands that would be served by other supplies
16 that are not included in the represented supply data. Likewise, the represented water supply(ies)
17 must reflect all water supplies available to serve the included demands. This understanding of
18 basic water availability analyses prompted me to work backwards from the Senior Chart to
19 understand the SWRCB’s analysis of the demand data represented by the SWRCB, and to assess
20 whether the demand data included demands that could not be met by the represented water
21 supply.

22 8. The analysis of demand, however, is only part of the equation to understand
23 whether the Senior Chart appropriately reflected actual conditions on or about May 1, 2015 and
24 June 10, 2015. Understanding which water supplies may have been excluded or included is also
25 critical. An assessment of the SWRCB’s water supplies, as represented in 0610-Combined, and
26 associated SWRCB staff deposition testimony regarding those supplies, was undertaken by Mr.
27 Nick Bonsignore of Wagner Bonsignore Consulting Civil Engineers (hereafter “Mr.
28 Bonsignore”). On behalf of BBID and WSID, Mr. Bonsignore prepared a report titled *Analysis of*

1 *Supply in the State Water Resources Control Board, Division of Water Rights' 2015 Methodology*
2 *for Water Availability Analyses for the Sacramento-San Joaquin-Delta Watershed* (“Bonsignore
3 Report”). (See Exhibit WSID0122.)

4 9. Mr. Bonsignore and I collaborated during my analysis of the 0610-Combined
5 spreadsheet to share findings and determinations concerning the supply and demand data
6 represented by the SWRCB. Our iterative analysis of the water supply and water demand data
7 allowed both of us to better understand the demands and supplies that should have been included
8 to ensure an accurate analysis of water availability.

9 10. The Senior Chart plots water supply data that represents both (1) actual daily
10 calculated Full Natural Flow (“FNF”) through June 7, 2015, and (2) calculated monthly forecasts
11 of FNF for the months of May through September, with some adjustments as documented on the
12 “FNF Adjustments” tab. FNF represents the surface water runoff that would be present if no
13 man-made dams or diversion works existed. This conclusion is drawn from the following
14 California Department of Water Resources (“DWR”) definition of “Full Natural Flow”: “*Full*
15 *natural flow, natural flow, natural runoff and unimpaired flow are all phrases that have been*
16 *used by the Department of Water Resources (DWR) in various publications to represent the*
17 *runoff from a basin that would have occurred had man not altered the flow of water in the basin.*”

18 (See Exhibit WSID0042, p. 4.) Based on my understanding of the water supply the SWRCB
19 indicates was available to meet demands – as depicted on the Senior Chart – I assessed the water
20 demand data to understand if the represented data was appropriately limited to the set of water
21 right demands that could physically and rightfully divert from the available FNF. A key part of
22 that analysis was to understand whether demands served by stored water – regardless of whether
23 pre-1914 or post-1914 – were included in the Senior Chart as demands that would divert FNF –
24 as such demands should not be charged against available FNF.

25 11. The 0610-Combined spreadsheet presents water rights demands located
26 throughout the entire Sacramento and San Joaquin River watersheds. This expansive geographic
27 boundary includes demands associated with diversions of FNF located well above Shasta Lake to
28 demands in the upper San Joaquin River watershed, as well as demands from the upper to lower

1 reaches of the major tributaries flowing into the Central Valley and demands in the legal Delta.
2 (See **Exhibit BBID252**.) While this expansive geographic area may be useful for generalized
3 evaluations of water supply and demand conditions, many complications exist that make such an
4 area inappropriate for evaluating water availability at specific points of diversion – such as within
5 the Delta. In 2015, the SWRCB reduced the geographic extent of several water availability
6 analyses it performed for specific watersheds, but failed to reduce the geographic extent when
7 evaluating the availability of water within the Delta. For example, see **Exhibit BBID253**, which
8 is a picture from my computer of the SWRCB’s website listing specific tributary analyses that the
9 SWRCB performed for more constrained geographic boundaries such as the Yuba River, the
10 American River, and the Tuolumne River. The inherent risk to the expansive geographic extent is
11 that the analysis will include demands that cannot be served by certain supplies because these
12 supplies exist in completely different watersheds (e.g. demands from upstream of the Tuolumne
13 River FNF gauging station that exceed the available FNF on the Tuolumne River could be
14 included in the resulting Senior Chart graphic as if these demands could be served by FNF from
15 the Yuba River or another disconnected supply source. In fact, SWRCB staff indicated that no
16 effort was made to remove these excess demands prior to issuing curtailments. (See **Exhibit**
17 **WSID0150, pp. 131-134**.) The Delta, as a unique geographic area that receives inflow from both
18 the Sacramento and San Joaquin River (and tributary) watersheds, would best be analyzed for
19 water availability by evaluating the supplies available to the Delta in comparison to the demands
20 within the Delta to more accurately determine water availability. In 2015, however, the SWRCB
21 did not perform such a Delta-specific analysis of supplies and demands. As such, my assessment
22 had to focus on the 0610-Combined spreadsheet to evaluate the potential inclusion of demands
23 throughout the entirety of the demand dataset that should have been excluded or otherwise
24 revised.

25 12. The water right demand data set used as the basis for the SWRCB’s water
26 availability analysis in early June 2015 is included in the 0610-Combined spreadsheet within the
27 tab labeled “WRUDS 2015-06-09” (See **Exhibit BBID249**), hereafter “WRUDS Data.” Monthly
28 demands presented within this tab under columns “EW” through “FK” represent the demand

1 values summarized in various forms for analysis elsewhere in the 0610-Combined spreadsheet.
2 These specific columns in WRUDS Data are referred to hereafter as the “Purple Columns.” My
3 initial analysis involved review of the extensive set of demand values represented in the Purple
4 Columns, particularly the months of April through September because these months were most
5 relevant to the SWRCB’s determinations that water was unavailable.

6 13. Because the emphasis of my initial investigation focused on pre-1914
7 appropriative water rights and riparian water rights (represented by the SWRCB’s 0610-
8 Combined spreadsheet as senior demands, hereafter collectively referred to as “Senior
9 Demands”), I sorted the WRUDS Data using Column L, labeled as “WR_TYPE,” to display only
10 the water rights listed as “Statement of Div and Use.” This step removed the water rights listed as
11 “Appropriative.” These were the only two water right types to choose from, with the
12 “Appropriative” label assigned to post-1914 water rights. Next, using Column G, labeled as
13 “AREA,” I removed water rights located in the Eel River and Russian River areas by using the
14 spreadsheet’s sorting feature. This step limited the water right data to those in the Sacramento,
15 San Joaquin, and Legal Delta areas, as those designations are used in 0610-Combined to group
16 Senior Demands into defined geographic areas. Finally, using the values in the Purple Columns
17 listed as the summation of values for April through September (Column “FJ” labeled
18 “DEMAND_APR-SEP”), the remaining water rights were sorted from the largest value to the
19 smallest (note: the sort feature allows “blanks” to be excluded, which removes additional water
20 rights that have no listed demand value in the Purple Columns). This sort resulted in a sequential
21 listing of the individual water rights that reflected the largest volumes for the combined months of
22 April through September. For instance, the first approximately 40 listed senior water rights
23 (hereafter referred to as the “Top 40 Senior Demands”) represent over 70 percent of the total May
24 demand for the entire set of over 4,800 individual senior water rights in the sorted data set. The
25 first ten of the Top 40 Senior Demands represent about 60 percent of the May total. According to
26 the indicator in Column “U” of 0610-Combined (labeled as “RESPONDED”), the values
27 presented in the Purple Columns for these Top 40 Senior Demands were populated from each
28 water right holders’ response to the SWRCB’s 2014 Information Order (hereafter referred to as

1 “2014 IO”). The October PRA included an Excel file titled “2015 IO Actual Demands.xlsx”
2 (hereafter referred to as “2015 IO”) (accessed through the following folder sequence in the
3 October PRA file organization: “Water Availability” – “2015” – “Information Order WR 2015-
4 0002-DWR” as shown in **Exhibit BBID254**). The 2015 IO file includes reported monthly
5 diversion quantities for 2014 and 2015 for both riparian and pre-1914 water right holders,
6 including all but one of the Top 40 Senior Demands (only Los Molinos Mutual Water Company
7 is indicated as not responding to the 2014 IO). The 2015 IO file, since it also included 2014
8 reported data, provided me with a reference to understand if the listed value in the WRUDS Data,
9 which values were reflected in the Senior Chart, matched values submitted in response to the
10 2014 IO for each.

11 14. Because a small set of senior water right listings represent a significant percentage
12 of the Senior Demand quantities listed for April through September, I conducted a more detailed
13 investigation of the listed monthly water demand values for the Top 40 Senior Demands. I
14 identified four primary groups of distinct water right holders for further investigation: (1) the San
15 Joaquin River Exchange Contractors, which includes Central California Irrigation District,
16 Columbia Canal Company, Firebaugh Canal Company, and San Luis Canal Company, (2) the
17 Feather River Settlement Contractors, which include Western Canal Water District and the Joint
18 Water Districts Board, comprised of Biggs-West Gridley Water District, Butte Water District,
19 Richvale Irrigation District and Sutter Extension Water District, (3) certain Sacramento River
20 Settlement Contractors, specifically Anderson Cottonwood Irrigation District, Glenn-Colusa
21 Irrigation District and Reclamation District #108, and (4) certain San Joaquin River tributary
22 water districts, specifically Merced Irrigation District, Oakdale Irrigation District, Turlock
23 Irrigation District, and the City and County of San Francisco Public Utilities Commission.

24 15. The four San Joaquin River Exchange Contractor districts (hereafter referred to
25 as “SJEC”) are listed separately in the 0610-Combined spreadsheet, with each reflecting demands
26 in the Purple Columns that match the 2014 IO values. Combined, the SJEC demand values for
27 April through August are 27,751, 61,361, 92,753, 114,172, and 89,353, acre-feet per month,
28 respectively. These demands are included in the Senior Chart used by the SWRCB to determine

1 water availability. In other words, these demands are purportedly drawing from the represented
2 FNF. However, because of the characteristics that form the basis of the SJEC exchange contracts,
3 I investigated (1) whether the depicted demands represent 2015 known or forecast quantities, and
4 (2) if the entire SJEC demand could rightfully be charged against FNF. My intent was to
5 understand if the demand values in WRUDS Data should have been modified prior to use in the
6 SWRCB's water availability analysis. First, at a minimum it is important to know whether the
7 SWRCB should have considered the diverted quantities reported by each SJEC as part of the
8 monthly reporting. According to the SWRCB's Order WR 2015-0002-DWR, the Senior right
9 holders were required to submit "[t]he monthly diversion for each month starting with February,
10 2015 ... by the 5th of each succeeding month until the drought end[ed]." (SWRCB Order WR
11 2015-0002-DWR, Paragraph "C") Thus, by the 6th of each month, the SWRCB should have had
12 actual SJEC diversion data for the prior month, and consistent with its representations in the
13 BBID ACL and WSID CDO, should have adjusted SJEC demands accordingly. (See BBID
14 ACL, ¶ 22; WSID CDO, ¶ 22.) Specifically, at the time the SWRCB prepared the 0610-
15 Combined spreadsheet, the SWRCB staff had the opportunity to incorporate actual reported
16 demand for April and May 2015. Furthermore, using the actual 2015 IO information, even absent
17 direct outreach to the Top 40 Senior Demands, SWRCB staff could have more accurately
18 forecasted June through September demands in the WRUDS Data for use in its water availability
19 analyses and curtailment forecasting. Upon inspection, the actual 2015 SJEC diversion data in
20 the 2015 IO is significantly different than the values in WRUDS Data as contained in 0610-
21 Combined. Furthermore, U.S. Bureau of Reclamation (hereafter referred to as "USBR") notified
22 the SJEC it would reduce deliveries in 2015, to about 40% of the SJEC's contract quantities.
23 Based on inspection of 2015 diversions, as reported in the 2015 IO, the SJEC received less water
24 in the same months of 2015 than 2014 (see **Exhibit BBID255, Table 1**). At a minimum, in light
25 of this evidence, the SWRCB should have adjusted SJEC demands downward.

26 16. As noted previously, I also investigated the source of water used – or projected to
27 be used – to serve the SJEC demands to see if further modifications should have been made to the
28 represented SJEC WRUDS Data. Based upon the tenets of the exchange agreement between the

1 USBR and the SJEC, the SJEC's pre-1914 San Joaquin River water rights are satisfied with water
2 diverted from the south Delta, rather than the San Joaquin River. In this respect, the supply that
3 the SJECs are entitled to divert pursuant to their pre-1914 water rights, is exchanged for water
4 from the south Delta, delivered via the Delta Mendota Canal (hereafter referred to as "DMC").
5 The details of the exchange agreement and water sources are complicated, but the monthly
6 disaggregation of total deliveries is accounted for in the San Luis Delta Mendota Water Authority
7 (hereafter referred to as "SLDMWA") invoicing to the Friant Water Authority (hereafter referred
8 to as "FWA") for payment purposes associated with the exchange agreement and reimbursements
9 from FWA for SLDMWA's operations of the DMC (hereafter referred to as "SJEC Invoice").
10 The SJEC Invoice covering the period March 2015 through February 2016 is contained in
11 **Exhibit BBID256**. As indicated on the SJEC Invoice, deliveries for each month to each of the
12 four SJEC entities are separately quantified. The deliveries are categorized as "Upper DMC,"
13 "Lower DMC," "MP" (in reference to DMC deliveries to the Mendota Pool), or "Flood
14 Flows/Releases." The first three categories reflect water delivered to each SJEC entity that
15 originated as a diversion in the south Delta by the USBR into the DMC. The water diverted by
16 the USBR into the DMC for this purpose is not diverted from the San Joaquin River's defined
17 FNF. Rather, the supplies are available for the USBR to divert into the DMC based upon the
18 varied water rights and stored water releases of the USBR north of the Delta. All of the SJEC
19 demands associated with these deliveries to the DMC in these categories should be removed from
20 the WRUDS Data set since they do not represent demands that are properly charged against FNF
21 or forecasted FNF, as represented in the Senior Chart.

22 17. The fourth category represented in the SJEC Invoice – Flood Flows/Releases –
23 represents water released by the USBR from Millerton Reservoir to meet SJEC diversion
24 demands. This understanding is based upon a phone conversation with Mr. Steve Ottomoeller of
25 the Friant Water Authority on January 5, 2016, who explained the invoice categories. As shown
26 in **Exhibit BBID256**, the USBR began releases in mid-July 2015 as part of extraordinary efforts
27 to satisfy its obligations under the SJEC exchange agreements. Though this portion of the total
28 SJEC monthly deliveries was met through releases from Millerton, it does not mean those

1 releases were comprised solely of San Joaquin River FNF. I investigated this point to understand
2 if all, a portion or none of the SJEC demands associated with recorded SJEC deliveries under the
3 Flood Flows/Releases category should have been included in the WRUDS Data. Specifically, I
4 reviewed a spreadsheet prepared by the USBR to track daily Millerton Reservoir and San Joaquin
5 River operations. I prepared an excerpt of this spreadsheet as **Exhibit BBID257** to identify
6 operations information from the spreadsheet relevant to my analysis. The columns titled “NR
7 (CFS)” and “Friant Release into the SJF (CFS)”, referred to hereafter as “Friant Release”,
8 represent the USBR’s calculated unimpaired flow and recorded releases from Millerton,
9 respectively. The NR (CFS) calculation reflects operations of upstream reservoirs operated by
10 Pacific Gas and Electric Company (hereafter “PG&E”) and Southern California Edison (hereafter
11 “SCE”). On July 15 (when the USBR began releases from Millerton to serve SJEC demands), the
12 NR value was significantly lower than the Friant Release value – averaging only about 20% of
13 the Friant Release between July 15 and August 31. Thus, the majority of the flow categorized as
14 Flood Flows/Releases was water released from storage – either Millerton storage or storage from
15 reservoirs operated by PG&E or SCE. This stored water does not comprise FNF, and therefore,
16 SJEC demands charged against this supply should have been adjusted accordingly. If the
17 WRUDS Data demands for April through September for each SJEC were adjusted consistent with
18 the above analysis, SJEC demands would have been displayed as in **Exhibit BBID255, Table 3**.
19 If this had been done, as demonstrated in **Exhibit BBID255**, the Senior Chart would have shown
20 a combined reduction in the cubic feet per second (hereafter “CFS”) values as follows for the four
21 SJEC entities (other reductions in senior water rights are described in the following paragraphs):
22 April = 467; May = 1,000; June = 1,561; July = 1,814; August = 1,312. These reductions are
23 grouped with other reductions later in this testimony to develop a cumulative reduction in
24 monthly demands that should have been reflected in the Senior Chart.

25 18. The next primary group of Top 40 Senior Demands previously identified is located
26 on the Feather River. The Feather River Settlement Contractors, which include Western Canal
27 Water District and the Joint Water Districts Board (the latter comprised of Biggs-West Gridley
28 Water District, Butte Water District, Richvale Irrigation District and Sutter Extension Water

1 District), collectively represent about 150,000 acre-feet per month of demand for May through
2 August in the WRUDs Data. These two distinct contractors were investigated separately.

3 19. Western Canal Water District (hereafter “WCWD”) holds a settlement contract
4 with the California Department of Water Resources (hereafter “DWR”) that recognizes two
5 originating water sources: (1) unimpaired flow available prior to the construction of Oroville Dam
6 (hereafter the “DWR Portion”), and (2) pre-1914 stored water supplies provided under contracts
7 with PG&E derived from PG&E’s North Fork Feather River power reservoirs and facilities
8 (hereafter the “NF Project”). Each source represents about 50% of the approximately 300,000
9 acre-foot contract total recognized in the settlement agreement between DWR and WCWD.
10 According to personal communications on December 23, 2015 with Mr. Ted Trimble of WCWD,
11 the settlement agreement was described to me as that it allows DWR to reduce deliveries of the
12 DWR Portion. During spring of 2015, DWR notified WCWD that this portion of their supply
13 would be reduced by 50% to approximately 75,000 acre-feet. WCWD generally recognizes that
14 its diversions under the DWR Portion constitute diversions of unimpaired flow, and WCWD
15 diverts against this supply first during the irrigation season until that portion of the WCWD
16 settlement contract is satisfied. The NF Project supplies are released from upstream reservoirs
17 during the season and used to meet the WCWD’s settlement agreement quantities as the supply
18 under the DWR Portion diminishes. Using this rudimentary representation as guidance, the
19 WCWD demands represented in the WRUDs Data could have been modified to reflect known or
20 forecast 2015 demand circumstances. Similar to the SJEC discussion, by early June the SWRCB
21 should have known the WCWD demands for April and May of this year because WCWD was
22 required to submit this information by the fifth day of the month. At a minimum, these values
23 should have been adjusted in the 0610-Combined spreadsheet. But, with minimal additional
24 investigation and discussions with WCWD, the remaining demands could also have been adjusted
25 to reflect WCWD’s forecast demands for June through September, as WCWD would have a
26 confident forecast by early June – a time which follows the major rice planting season where total
27 planted acres dictate the water forecasts for the growing season. And given that the portion of
28 demand met by the NF Project supply is a demand not met by FNF, additional adjustments should

1 have been made to the WRUDS data by removing the 2015 demand charged against NF Project
2 supplies. Based upon my evaluation of the data, the WCWD demands should have been reduced
3 as reflected in **Exhibit BBID258, Table 1**. If this had been done, as demonstrated in **Exhibit**
4 **BBID258** the Senior Chart would have shown a reduction in CFS values as follows for WCWD
5 (other reductions in senior water rights are described in the following paragraphs): April = (-89);
6 May = 42; June = 557; July = 873; August = 532. These reductions are grouped with other
7 reductions later in this testimony to develop a cumulative reduction in monthly demands reflected
8 in the Senior Chart.

9 20. The other major Feather River Settlement Contractor is the Joint Districts Water
10 Board (hereafter “Joint Board”) – representing four distinct water purveyors. The WRUDs Data
11 indicates this set of water purveyors has a demand of nearly 100,000 acre-feet per month in May,
12 June and July, and nearly 80,000 acre-feet in August. Although the SWRCB claims it
13 “consistently adjusts the water availability and demand analyses based on new information
14 obtained from stakeholders, or adjustments to the projected flows from the DWR,” (BBID ACL,
15 ¶ 22.) it represents that the “analysis shows that by June 12, 2015, available supply was
16 insufficient to meet the demands of appropriative rights with priority dates of 1903 and later
17 throughout the Sacramento and San Joaquin River watersheds and the Delta.” (BBID ACL, ¶
18 24.). As referenced in Column FK (labeled as “Notes”) of an updated version of the WRUDS
19 Data, as included in all versions of the SWRCB analysis spreadsheet where the WRUDS Data tab
20 is labeled with the date of 2015-06-15 (note that the 0610-Combined spreadsheet demand date
21 has a date of 2015-06-09 as previously described), the SWRCB updated the Joint Board demand
22 per an email originally sent on April 24, 2015 from the consulting firm MBK Engineers (hereafter
23 “MBK email”). The MBK Email is presented in **Exhibit BBID259**. The notation in Column FK
24 for the 2015-06-15 WRUDS Data for the Joint Board demand states: “*May-Dec 2015 forecasted*
25 *diversions per MBK's 4/24/15 email.*” (See for example the Excel file titled “WRUDS_DB 2015-
26 06-15.xlsx” accessed through the following folder sequence in the October PRA file organization:
27 “Water Availability” – “2015” – “WRUDS”, as shown in **Exhibit BBID387**.) This note does not
28 exist for the same Joint Board water right in the 0610-Combined WRUDS Data. Upon

1 inspection, the MBK Email appears to have resulted in the SWRCB modifying the demand values
2 for the Joint Board; a change that was reflected in any water availability analysis using the 2015-
3 06-15 WRUDS Data tab. Because the MBK Email pre-dated the 0610-Combined spreadsheet,
4 the reduced demands should have been reflected in the 0610-Combined WRUDS Data. The
5 MBK Email resulted in the following changes to the Joint Board demand values (MBK Email
6 value is in parentheses; all values are in acre-feet): May: 98,255 (81,075, although the 2015 IO
7 value was even lower at 61,875); June: 91,481 (53,571); July: 99,165 (68,054); August: 78,824
8 (55,311). As with the previous analysis for the SJEC and WCWD, the SWRCB should have
9 included 2015 IO data for April and May into the 0610-Combined, then reflected the forecasts
10 from the MBK Email for the remaining months. If this had been done, the Senior Chart would
11 have shown a reduction in CFS values as follows for the Joint Board (other reductions in senior
12 water rights are described in the following paragraphs): April = (-38); May = 593; June = 638;
13 July = 507; August = 383. These reductions are grouped with other reductions later in this
14 testimony to develop a cumulative reduction in monthly demands reflected in the Senior Chart.

15 21. The third group of Top 40 Senior Demands is the Sacramento River Settlement
16 Contractors ("SRSC"). Though there are several, I investigated the demands associated with just
17 three: Anderson Cottonwood Irrigation District ("ACID"), Glenn-Colusa Irrigation District
18 ("GCID") and Reclamation District #108 ("RD108"). In the 0610-Combined spreadsheet, these
19 three water purveyors have a combined demand of about 150,000 acre-feet per month for the
20 months of May through August, with GCID representing the vast majority with about 130,000
21 acre-feet of monthly demand. Improperly including these demands had a significant effect on the
22 Senior Chart and resulting water availability analysis.

23 22. Similar to the SJEC and Feather River Settlement Contractors, by early June the
24 SWRCB would have known the GCID actual diversions for April and May of 2015. At a
25 minimum, these values should have been adjusted in the WRUDS Data and SWRCB staff should
26 have contacted GCID representatives regarding appropriate forecasts for June through September.
27 If this had been done the Senior Chart would have shown a reduction in CFS values as follows for
28 GCID (other reductions in senior water rights continue to be described in the following

1 paragraphs): April = (-385); May = 221; June = 398; July = 231; August = 128. (See **Exhibit**
2 **BBID260.**) These are minimum modifications, however, GCID's demands could potentially be
3 further modified as a result of anticipated operations of Shasta Reservoir and the scheduling of
4 deliveries to satisfy GCID's senior water rights. On April 21, 2015, the USBR sent a letter to the
5 SRSC detailing provisions for planned contract allocations and water delivery scheduling for
6 2015. (See **Exhibit BBID261.**) In the first full paragraph on page two of the letter, USBR
7 indicates that for 2015 it would "(2) *implement an accounting methodology for diversion*
8 *schedules for each month that accounts for diversions in the following order: regular monthly*
9 *Base Supply, then unused Base Supply from any previous month, and then Project Water;*" I
10 attempted to obtain documentation of this accounting to investigate whether the portion of
11 monthly reported deliveries classified as "unused Base Supply from any previous month" should
12 have been removed as it would not be a demand on the FNF for that month. I have yet to receive
13 this information so did not make further modifications to the WRUDS Data demands for GCID.
14 To the extent that "unused Base Supply" was essentially stored water, GCID demands charged
15 against that supply should not have been included in the SWRCB's demand calculation in the
16 Senior Chart.

17 23. Similar to GCID, both ACID and RD108 reported values per the information
18 order. However, unlike GCID, these two purveyors saw minimal reduction and actually reported
19 increased diversions for 2015, per the 2015 IO data. To be consistent, these increased diversions
20 should also be recognized and reflected in the Senior Chart. If this had been done, the Senior
21 Chart would have shown a reduction in CFS values as follows for the ACID and RD108: April =
22 (-41); May = 18; June = (-9); July = (-5); August = 4. (See **Exhibit BBID260.**)

23 24. There are several water purveyors with senior rights to tributaries to the San
24 Joaquin River that are also within the Top 40 Senior Demands. Among them is Turlock Irrigation
25 District (hereafter "TID") that diverts water from the Tuolumne River. Provided with the October
26 PRA were several Excel spreadsheets within a subfolder titled "WRUDS." These Excel files
27 appear to document the water rights demand data set at various points in time. In the spreadsheet
28 titled "WRUDS_DB 2015-05-28.xlsx" (accessed through the following folder sequence in the

1 October PRA file organization: “Water Availability” – “2015” – “WRUDS”, as shown in **Exhibit**
2 **BBID386**) one of the tabs is labeled “Change Log.” This tab appears to be used to reflect
3 changes made by the SWRCB staff to the water rights data. In particular, this tab includes an
4 entry for May 19, 2015 that states: “*Turlock Irrigation District reported diversions halved in IO*
5 *Pre-14 2014 tab on discovery that double-reporting occurred.*” (See **Exhibit BBID295.**) On the
6 associated tab in the spreadsheet labeled “IO Pre-14 2014”, a note displayed in Column Q states:
7 “*TID double-reported in informational order response. Values here are reduced by 1/2.*” The
8 values referred to are the same values listed in the 0610-Combined spreadsheet’s WRUDS Data
9 for TID. To be consistent with other changes to the WRUDS Data, the TID 2015 IO values
10 should have been used for April and May, and these values used for purposes of forecasting the
11 remaining irrigation months. However, the 2015 IO values for April and May are 79,422 acre-
12 feet (April) and 102,604 acre-feet (May). For comparison, the values listed in the 0610-
13 Combined spreadsheet are 48,008 acre-feet (April) and 63,814 acre-feet (May). Comparing the
14 2014 modified values to the 2015 IO values, the 2015 IO values appear to also be nearly double
15 the 2014 values. To be consistent with the SWRCB’s treatment of the 2014 IO data for TID, the
16 2015 IO values should also be reduced by 50% to reflect actual diversions for April and May. To
17 be conservative, the June through August 2014 IO values in the WRUDS Data were not adjusted,
18 as they already reflect the SWRCB’s adjustment. If this had been done, the Senior Chart would
19 have been reduced by the CFS values as follows for TID (other reductions in senior water rights
20 continue to be described in the following paragraphs): April = 140; May = 204; June = 0; July =
21 0; August = 0.

22 25. Similarly, another significant demand on a tributary to the San Joaquin River
23 derives from three statements owned by the City and County of San Francisco Public Utilities
24 Commission (“SF PUC”), which also diverts water from the Tuolumne River. By early June the
25 SWRCB knew the SF PUC’s actual diversions for April and May of 2015. At a minimum, these
26 values should have been adjusted in the 0610-Combined spreadsheet and SWRCB staff should
27 have discussed with SF PUC representatives the appropriate forecast for June through September.
28 If this had been done, and based upon the 2015 IO data, the Senior Chart would have been

1 reduced by the CFS values as follows for SF PUC (other reductions in senior water rights
2 continue to be described in the following paragraphs): April = 1,291; May = 656; June = (-171);
3 July = (-88); August = (-1).

4 26. While the previously presented demand modifications for a subset of Top 40
5 Senior Demands have a significant affect on the Senior Chart, I continued to investigate the
6 WRUDS Data for other modifications that should have been made prior to SWRCB performing a
7 water availability analysis. This continued investigation identified reasonable and necessary
8 modifications to the WRUDS Data that the SWRCB should have undertaken. For purposes of
9 this testimony, these additional modifications are categorized as follows: (a) misuse of 2014 IO
10 data where 2015 IO data were available for all remaining respondents to the 2015 IO, (b)
11 duplicate counting of water demands in the Delta, (c) non-recognition of the "Delta conservation"
12 deal, (d) inclusion of "unmet" tributary demands on FNF streams, (e) inclusion of tributary
13 demands where no related daily FNF supply is included on the Senior Chart, and (f) other errors
14 such as inclusion of "drain" diverters, general data entry mistakes, averaging 2010 through 2013
15 eWRIMS data where 2010 and 2011 values bias the resulting averages.

16 27. The first of these categories was established to capture 2015 IO reported demand
17 for the 1,000+ specific water right holders that were not reflected in the subset of Top 40 Senior
18 Demands already evaluated. In addition to the modifications for SJEC, WCWD, Joint Board,
19 GCID, ACID, RD108, TID, and SFPUC, as presented in the prior paragraphs, April and May
20 demands for the remaining Top 40 Senior Demands also should have been used by SWRCB.
21 However, these only represent a small fraction of the 1,000+ water rights with reported data, as
22 recognized when reviewing the 2015 IO data set. The 1,000+ reported quantities for April and
23 May should have been incorporated into the WRUDS Data and subsequently used to adjust
24 forecasts of June through September 2014 IO values that were otherwise used in 0610-Combined,
25 as the cumulative effect of over 1,000 entries can result in significant changes. To at least
26 account for a portion of these other statements, the 2015 IO values for the remaining Top 40
27 Senior Demands were compared to the WRUDS Data. When comparing the April through
28 August values in WRUDS Data for the remaining Top 40 Senior Demands, there were individual

1 increases and decreases in monthly values, but an overall reduction in the total monthly values.
2 (See **Exhibit BBID262**.) If the SWRCB had undertaken this type of analysis, the Senior Chart
3 demand would have been reduced by the following CFS values: April = 584; May = 777; June =
4 568; July = 300; August = 489.

5 28. The next category of error discovered is termed “duplicate Delta demands.” The
6 WRUDS Data includes nearly 9,000 listed Senior Demands for the area designated in the 0610-
7 Combined as the “Legal Delta” in Column “G” of the WRUDS Data tab. Sorting the April
8 through September summary demand tab, Column “FJ” of the WRUDS Data, I browsed through
9 the Purple Columns reviewing the listed values. I discovered many instances where multiple
10 statements had the same listed value for the same month (i.e., May through August values for one
11 statement matched the same values for another statement, although the monthly values differed).
12 Upon further inspection, in these circumstances I discovered these often were statements with the
13 same listed “Primary Owner”, as presented in Column “C.” Further research for a few randomly
14 selected statements resulted in discovery that often multiple statements are reported to cover the
15 same parcel of land. In some instances the potential duplicate counting was identified, flagged
16 and modified by the SWRCB as indicated by notations in Column “Y,” Column “Z,” and Column
17 “AA.” However, as demonstrated by the following examples, irrespective of the notations in
18 these columns, duplicate reporting appears to occur in several significant instances.

19 29. The first example is from Mandeville Island (hereafter “Mandeville”), located in
20 the Legal Delta. Mandeville has a total of 56 listed statements, all associated with either
21 “Tuscany Research Institute” or “CCRC Farms, LLC” as the primary owner. As presented in
22 **Exhibit BBID263**, which represents information copied from 0610-Combined, the 56 statements
23 represent a total of 16,464.1 net acres and a total demand of 51,666 acre-feet. These are the
24 summation of values included in 0610-Combined. However, Mandeville is only approximately
25 5,000 acres, and as demonstrated below, any double-cropping that may result in a higher net acres
26 is already addressed by the method used to report values to the SWRCB by the primary owners
27 under the SWRCB’s information orders.

28 30. While several instances of the same monthly values are reflected in **Exhibit**

1 **BBID263**, I reviewed the six with the largest total demand: S020995; S021018; S021024;
2 S021030; S021032; and S021033. The “Initial Statement of Water Diversion and Use” (hereafter
3 “Initial Statements”) for these six statements, as accessed through the SWRCB’s eWRIMS on-
4 line water rights database, are presented in **Exhibit BBID264**. I focused on three specific details
5 from the Initial Statements: the agent, the listed beneficial water use as entered by the agent under
6 Line I, and the attached map in response to Line J. Even though the primary owner varied
7 between Tuscan Research Institute and CCRC Farms, Inc., the agent was the same on all six.
8 This would indicate that the agent was aware of and responsible for how the information on each
9 of the six was being reported to the SWRCB. Review of the attached maps for each indicated that
10 there was significant concurrence of boundaries, causing me to further compare the beneficial
11 uses in Line I. **Exhibit BBID265** is a summary of the specific listed crop type and acreage and
12 how each was repeated among the six Initial Statements. Based upon my analysis, these six
13 statements represent the collection of water diversion points that collectively serve about 1,244
14 acres (the total beneficial use acres listed for S021018 and S021030).

15 31. The reporting spreadsheets used to respond to the SWRCB’s 2014 IO for these six
16 statements (hereafter “Reporting Sheets”) are presented as **Exhibit BBID266**. Upon inspection,
17 all six spreadsheets list the same total acreage and the same total monthly water demand. The
18 total acreage on each Reporting Sheet is about half of the 1,244 acres shown as being irrigated on
19 the Initial Statements for S021018 and S021030. These monthly values are the same values
20 represented in the Purple Columns for each respective statement (see **Exhibit BBID263**) with the
21 exception that an added monthly value of 1 acre-foot was included for each statement to account
22 for its water right basis as both riparian and pre-1914. For instance, as shown in the Reporting
23 Sheets for S021018, the June 2014 total demand is 528.11 acre-feet. In the accompanying
24 SWRCB entry form, the 528.11 acre-feet value is listed as pre-1914 and a value of 1 acre-foot is
25 entered as a riparian right. The Purple Column in 0610-Combined for this statement represents
26 this by including the statement twice, once with the value for June of 528.11 acre-feet and one
27 with the value of 1 acre-foot. Combined, these six Reporting Sheets indicate a total demand for
28 the month of June 2014 of 3,175 acre-feet. However, since each of the six Reporting Sheets lists

1 a total of 639.5 acres, I have concluded that the statement holder has reported half of the total
2 acreage for each of the six statements, resulting in three times the actual total acreage being
3 reported. This over-reports the demand by a factor of three. Instead of 3,175 acre-feet for the
4 month of June, the cumulative value should be about 1,048 acre-feet – one third of the total. If
5 this were done, the demand just for these six statements would have been reduced by 36 CFS. As
6 these six statements represent approximately one half of the total Mandeville demand for all 56
7 statements, and the statements likely followed the same reporting method in similar Reporting
8 Sheets, the adjustment would have been a total reduction of 72 CFS for Mandeville. As discussed
9 later, I relied on this instance of over-reporting to guide an overall reduction in the WRUDS Data
10 for demands in the Legal Delta.

11 32. A second example of duplicate Delta demands was found on King Tract, also
12 located in the Legal Delta, and includes four statements associated with “Andrew P. Solari” as the
13 primary owner (hereafter “Solari”). As presented in **Exhibit BBID267**, which was provided to
14 me by a representative of the water right holder, the original demand information for S019407,
15 S019410, S019413, and S019348 submitted to the SWRCB in March 2015 mistakenly reported
16 the total of 448 acres for each of the four statements. The water right holder discovered the
17 mistake and revised spreadsheets were used to amend reports filed on April 17, 2015. (See
18 **Exhibit BBID268**.) However, the SWRCB did not update the WRUDS Data to reflect these
19 amended reports. This over-reports the demand by a factor of four for these four statements.
20 Instead of 422.2 acre-feet for the month of June for each individual statement, the value should
21 have been 105.55 acre-feet – one fourth of the total. If the SWRCB had reflected updated filings,
22 the demand for these four statements would have been reduced by 21 CFS in the month of June,
23 with similar reductions occurring in other months.

24 33. The Reporting Spreadsheets used for Mandeville and Solari (see **Exhibits**
25 **BBID266, BBID267, BBID268**) were developed and recommended for use by members of the
26 South Delta Water Agency (hereafter “SDWA”) and the Central Delta Water Agency (hereafter
27 “CDWA”). Multiple links to the Reporting Spreadsheet tools and instructions were made
28 available to SDWA and CDWA members to assist them with meeting the SWRCB’s information

1 reporting requirements. The links are at the following website hosted by San Joaquin County:
2 <http://www.sjwater.org/Delta%20Water%20Diversion%20&%20Use%20Forms.htm>. A screen
3 shot from my computer of this web page is contained in **Exhibit BBID269**. These Reporting
4 Sheets were recommended for wide use by water right holders within CDWA and SDWA to
5 support their water demand filings. Lacking the time to evaluate all of the individual filings, I
6 applied an assumed adjustment to reflect the likely misreporting of monthly demands in several
7 instances throughout the CDWA and SDWA service areas. For simplicity, I applied a 5%
8 reduction in demand for total Delta demand values included on the “Senior Demand Summary”
9 tab of 0610-Combined for the summed “Riparian: Delta” and “Pre-14 Only: Delta” values. A
10 print of the spreadsheet performing this calculation is contained in **Exhibit BBID270**. If this was
11 done, the Senior Chart would have been reduced by the CFS values as follows to account for
12 over-representing Delta demands: April = 77; May = 134; June = 195; July = 198; August = 144.
13 (See **Exhibit BBID270, Part 1.**) This is likely a conservative assumption as the reductions solely
14 for Mandeville and Solari represent about half of this reduction. If all of the statements
15 associated with demands within CDWA and SDWA were evaluated further reductions would
16 likely be warranted.

17 34. The third category of other errors in the representation of demands in the WRUDS
18 Data is the lack of recognition of the reduction in Delta demands for participation in the
19 SWRCB’s “Voluntary Cutback Program for Delta Riparian Water Rights” (hereafter “Delta
20 Cutback Program”). **Exhibit BBID271** is a May 22, 2015 news release from the SWRCB
21 describing the program and its objectives. The release identifies the SWRCB’s objective of the
22 Delta Cutback Program: “*Growers who participate in the program could opt to either reduce*
23 *water diversions under their riparian rights by 25 percent, or fallow 25 percent of their land. In*
24 *both cases, the reductions would be from 2013 levels.”* Participants had until June 1, 2015 to
25 submit documentation regarding their participation and plans to achieve the objective. The
26 SWRCB has not produced any final summary information regarding the success of the program,
27 nor documenting the monthly demand reductions compared to the 2013 baseline. However, as
28 this was a highly touted agreement reached by SWRCB’s Delta Watermaster, it would be remiss

1 of the SWRCB to not reflect forecast reductions in the WRUDS Data resulting from Delta
2 riparian water right holders either fallowing land or otherwise conserving water beginning in
3 June. Recognizing that the objective for the Delta Cutback Program is a 25% reduction compared
4 to 2013, and the demand values in the WRUDS Data may reflect 2014 IO values, it would be
5 inappropriate for me to assume the full 25% reduction was achieved. Also, it would be
6 inappropriate for me to assume all of the Delta riparian water right holders participated. To
7 address these constraints, I made the following assumptions: (a) a reduction will only be applied
8 to those Delta riparian water right holders within SDWA and CDWA, as those in the North Delta
9 Water Agency (hereafter "NDWA") likely relied on a contract between the DWR and NDWA to
10 ensure adequate water supplies, and thus likely did not participate; and (b) the demand reduction
11 would be limited to only 10% of each month's current total for the subset of Delta demands
12 associated with SDWA and CDWA riparian water right holders.

13 35. The NDWA represents about 44% of the Delta land area within the legal Delta.
14 (See Exhibit BBID275; see also Exhibit WSID0010, Table 7, p. 91 [NDWA includes about
15 277,000 acres out of about 602,000 developed acres in the Legal Delta].) Subtracting this leaves
16 56% remaining that may have participated in the Delta Cutback Program. To remove the
17 potential for duplicate reductions, I first reduced the monthly Delta values represented on the
18 "Senior Demand Summary" tab of 0610-Combined to reflect the prior represented reductions for
19 duplicate Delta demand reporting. The revised monthly demand values were multiplied by 56%
20 to reflect the CDWA and SDWA portions, then again by 10% to reflect the anticipated savings
21 from the Delta Cutback Program. If the SWRCB had undertaken a similar analysis, the Senior
22 Chart would have been reduced by the CFS values as follows to account for reductions due to the
23 Delta Cutback Program: April = 82; May = 143; June = 208; July = 211; August = 153. These
24 calculations are also presented in Exhibit BBID270, Part 2.

25 36. The fourth category of other errors in the representation of demands in the
26 WRUDS Data is the inclusion of excess demands on FNF tributaries. For each of the ten FNF
27 tributaries the SWRCB includes in the FNF value on the Senior Chart, Mr. Nick Bonsignore
28 analyzed the total demands on that tributary compared to the available FNF (hereafter "FNF

1 Excess Analysis”). I have independently reviewed Mr. Bonsignore’s FNF Excess Analysis as
2 presented in the Bonsignore Report contained in **Exhibit WSID0122.**) The FNF Excess Analysis
3 identified that the SWRCB included demands from the WRUDS Data on the Senior Chart for
4 several FNF tributaries where the demands in the representative tributary watershed exceed the
5 FNF supply available on that tributary. Since it is physically not possible for tributary demands
6 to be met by FNF when sufficient FNF does not exist, then these demands must be removed from
7 the comparative analysis represented in the Senior Chart. The FNF Excess Analysis evaluated all
8 demands, including Riparian, Pre-1914 and Post-1914 as included in WRUDS Data. For my
9 analysis, I only considered the results of the FNF Excess Analysis for riparian and pre-1914 water
10 rights for the months of April through August. For these two types of water rights, excess
11 demands were identified in April, May, June, July and August on the Cosumnes River, the
12 Stanislaus River, and the Tuolumne River. July and August reflected excess demands on the
13 Yuba River and the American River, also. The details of the FNF Excess Analysis are included
14 in Table 2-4 of the Bonsignore Report. (See **Exhibit WSID0122.**) For ease of reference, Table
15 2-4 is included in **Exhibit BBID272.** Using the information in Table 2-4, I converted the excess
16 demand values from acre-feet to CFS. If these excess demands were appropriately removed, the
17 Senior Chart would have been reduced by the CFS values as follows to account for excess
18 demands identified by the FNF Excess Analysis: April = 2,238; May = 1,634; June = 263; July =
19 319; August = 352.

20 37. The fifth category of other errors in the representation of demands in the WRUDS
21 Data is the inclusion of tributary demands where no related FNF supply is included in the Senior
22 Chart. This category of errors was analyzed by Mr. Bonsignore. I independently reviewed Mr.
23 Bonsignore’s analysis as presented in the Bonsignore Report. In these instances, Mr. Nick
24 Bonsignore analyzed the total demands on each tributary where no supply was included in the
25 Daily FNF supply reflected in the Senior Chart (hereafter “UF Excess Analysis”). Similar to the
26 FNF Excess Analysis, the UF Excess Analysis concluded that the SWRCB included demands
27 from the WRUDS Data in the Senior Chart for tributaries that could only be served by a supply
28 on that tributary, but did not include any associated supply from that tributary. Thus, the

1 demands essentially were included as if the FNF supplies generated from different watersheds
2 would serve them – an impossible situation. The details of the UF Excess Analysis are included
3 in Table 2-5 of the Bonsignore Report. (See Exhibit WSID0122.) For ease of reference, Table
4 2-5 is included in Exhibit BBID272. For my analysis, I only considered the results of the UF
5 Excess Analysis for riparian and pre-1914 water rights for the months of April through August.
6 Using the information in Table 2-5, I converted the excess demand values from acre-feet to CFS.
7 If these demands were appropriately removed, the Senior Chart would have been reduced by the
8 CFS values as follows to account for excess demands identified by the UF Excess Analysis: April
9 = 691; May = 882; June = 862; July = 899; August = 903.

10 38. The final category is a catchall of many different concerns and errors that
11 individually or collectively would have reduced the represented demands on the Senior Chart,
12 including general data entry mistakes and adverse impacts of averaging 2010 through 2013
13 eWRIMS data.

14 39. The first of these would be at least two identified mistaken entries for a single
15 month's value for a single water right holder. Statement S019457, with listed primary owner in
16 the WRUDS Data of Klein Family Ranches, has a July demand value in the Purple Columns
17 listed as 11,017 acre-feet. Similar values for July for other Klein Family Ranch statements
18 include a value of 110.17 (e.g. S019451), and the prior and subsequent months for this particular
19 statement would indicate the value should be 110.17 rather than 11,017. Therefore, the July value
20 for this statement should be reduced by 10,907 acre-feet, equivalent to a demand reduction of 178
21 CFS. A second data entry error was found listed for S017292, with primary owner Arnaudo
22 Bros. LP. For this statement, the March value is listed as 62,271 acre-feet. From the other
23 reported monthly values and for other statements for this same primary owner, the likely value is
24 622.71 acre-feet. This fix would have reduced the March value by 61,648 acre-feet, or 1,004
25 CFS. While my analysis focused on evaluating demands between April and August, this
26 significant mistake in March would be important to reflect in the Senior Chart.

27 40. The first example of the error that occurs with averaging the 2010 through 2013
28 eWRIMS data is found in statement S000230, with Genevieve M Boothe Trust as the listed

1 primary owner. Reviewing the diversion data for each month of the years 2010 through 2013 in
2 WRUDS Data shows that 2010 monthly values were quantified as 2,000 acre-feet for the months
3 May through August (with April listed as 3,000 acre-feet). The 2011 values for the same months
4 were only 18 acre-feet (with April listed as 22 acre-feet). The monthly values for 2012 were also
5 18 acre-feet (with April listed as 30 acre-feet). 2013 values were all listed as 18 acre-feet. But,
6 as a result of averaging the four years, the Purple Columns list this demand as 514 acre-feet for
7 each month (with April listed as 768 acre-feet). Removing 2010 from the average, the value
8 drops to 18 acre-feet (with April averaging 23 acre-feet). If this correction was made, the Senior
9 Chart would have reduced CFS demands as follows: April = 13; May through August = 8 each.

10 41. Another example is statement S002509, R Hamby as the listed primary owner.
11 Reviewing the diversion data for each month of the years 2010 through 2013 in WRUDS Data
12 shows that 2010 monthly values were quantified as 1,200 acre-feet for the months April through
13 August. The 2011 through 2013 values for the same months were only 14 acre-feet. But, as a
14 result of averaging the four years, the Purple Columns list this demand as 310 acre-feet for each
15 month. Removing 2010 from the average, the value drops to 14 acre-feet. If this correction was
16 made, the Senior Chart would have reduced CFS demands for April through August by 5 CFS
17 each month. I only spent limited time looking for these circumstances and would assume other
18 examples could easily be found. For instance, statement S008598 (primary owner John Derner)
19 also appears to mis-represent demands in the Purple Columns as a result of the SWRCB's blanket
20 averaging when 2014 IO data was not available.

21 42. Combined, the modifications described in the above paragraphs have a significant
22 effect on the representation of the demands on the Senior Chart. My analysis only modified
23 monthly demands for April through August. If these modifications were included by the
24 SWRCB, the Senior Chart monthly demands would have been modified as follows: reduce April
25 by 5,036 CFS; reduce May by 6,316 CFS; reduce June by 5,084 CFS; reduce July by 5,450 CFS;
26 and reduce August by 4,412 CFS. (See Exhibit **BBID389** for a summary of the adjustments.) The
27 resulting modified monthly demands are shown layered on top of the Senior Chart to demonstrate
28 the impact to the water availability analysis. (See Exhibit **BBID273**.)

1 43. If the SWRCB had modified Senior Demands as I have detailed, the picture of
2 water availability for BBID on June 12, 2015, as reflected in my revised Senior Chart, would
3 have looked far different than the SWRCB's Senior Chart. When the revised Senior Demands are
4 compared to the Senior Chart Daily FNF values, as plotted in **Exhibit BBID273**, it is clear that
5 the revised Senior Demands are tracking consistently less than Daily FNF. Therefore, as of June
6 12, 2015, there was no reasonable basis for the SWRCB to conclude that water was unavailable
7 for the purpose of issuing the BBID ACL.

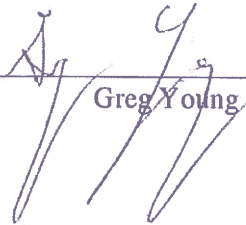
8 44. I also wanted to understand the impact on the SWRCB's water availability
9 analysis if post-1914 water rights up to and including WSID's were added to the revised Senior
10 Demand values. To complete this analysis I first sorted the WRUDS Data to turn on only the
11 appropriate demands using the sort function in the column labeled "WR-TYPE." This step
12 removed all of the Senior Demands. Using the sort function in the column labeled
13 "PRIORITY_DATE," I limited the WRUDS Data to only those post-1914 water rights that were
14 senior to WSID's April 17, 1916 priority date. This sort resulted in fifteen individual water
15 rights. Two were immediately removed since one included a "power only" flag, which I
16 understood from listening to SWRCB staff depositions, meant the demand was removed. And the
17 second was marked as not being analyzed, likely because it was on the Cache Creek watershed,
18 for which, again according to my understanding from SWRCB staff deposition testimony, the
19 SWRCB staff had removed all demands. Thirteen water rights remained, as shown in **Exhibit**
20 **BBID274**. Two of the remaining rights are located on the San Joaquin River and are listed with
21 the USBR as the primary owner. As of April 23, 2015, the two USBR rights were no longer
22 available to the USBR because they were curtailed pursuant to the SWRCB's curtailment notice,
23 which shut off all post-1914 rights in the San Joaquin River watershed on that date. The
24 summation of the March through September WRUDS Data values both with and without the
25 USBR rights are shown in **Exhibit BBID274**. The summation without the USBR rights is
26 converted to a CFS value and added to the previously revised Senior Demands depicted on
27 **Exhibit BBID273**. This new chart is depicted in **Exhibit BBID385**. To reflect the curtailment of
28 the USBR's rights on April 23, 2015, Exhibit AE includes the USBR's demands for A000023 and

1 A000234 for the month of April, but does not include the demands for these rights going forward
2 in the months of May-August 2015.

3 45. If the SWRCB had modified Senior Demands as I have detailed, the picture of
4 water availability for WSID on May 1, 2015, as reflected in my revised Senior Chart with the
5 post-1914 additional water rights, would have looked far different than the SWRCB's chart.

6 When the revised Senior Demands are compared to the revised Senior Chart Daily FNF values,
7 as plotted in **Exhibit BBID385**, it is clear that the revised Senior Demands are tracking
8 consistently less than Daily FNF in April and tracking to be well above the revised Senior
9 Demands with the added post-1914 rights into May. Therefore, as of May 1, 2015, there was no
10 reasonable basis for the SWRCB to conclude that water was unavailable for the purpose of
11 issuing the WSID CDO.

12 I declare under penalty of perjury under the laws of the State of California that the
13 foregoing is true and correct and that this declaration was executed by me on January 18, 2016 in
14 Sacramento, California.

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16 _____
17 Greg Young
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