BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF DISTRIBUTION OF WATER TO VARIOUS WATER RIGHTS HELD BY OR FOR THE BENEFIT OF A&B IRRIGATION DISTRICT, AMERICAN FALLS RESERVOIR DISTRICT #2, BURLEY IRRIGATION DISTRICT, MILNER IRRIGATION DISTRICT, MINIDOKA IRRIGATION DISTRICT, NORTH SIDE CANAL COMPANY, AND TWIN FALLS CANAL COMPANY	Docket No. CM-DC-2010-001 **ORDER REVISING APRIL 2013 FORECAST SUPPLY** (***METHODOLOGY STEPS 6 – 8***)

FINDINGS OF FACT

A. Background

1. On June 23, 2010, the Director of the Idaho Department of Water Resources ("Director" or "Department") issued his *Second Amended Final Order Regarding Methodology for Determining Material Injury to Reasonable In-Season Demand and Reasonable Carryover* ("Methodology Order"). The Methodology Order established 10 steps for determining material injury to members of the Surface Water Coalition ("SWC"). This order will examine steps 6, 7, and 8 from the Methodology Order.

2. Step 6 states as follows:

> Approximately halfway through the irrigation season, but following the events described in Step 5, the Director will, for each member of the SWC: (1) evaluate the actual crop water needs up to that point in the irrigation season; (2) estimate the Time of Need date; and (3) issue a revised Forecast Supply.

Methodology Order at 36 (internal footnote omitted).

3. Step 7 states as follows:

> Shortly before the estimated Time of Need, but following the events described in Steps 5 and 6, the Director will, for each member of the SWC: (1) evaluate the actual crop water needs up to that point in the irrigation season; (2) issue a revised Forecast Supply; and (3) establish the Time of Need.

> This information will be used to recalculate RISD [Reasonable In Season Demand] and adjust the projected DS [Demand Shortfall] for each member of the SWC. . . . The Director will then issue revised RISD and DS values.

Id. at 37.

4. According to the Methodology Order, "If the Director determines that the estimated Time of Need is reasonably certain, Step 7 will not be implemented for in-season purposes." *Id.*

5. Step 8 states as follows:

> At the Time of Need, junior ground water users are required to provide the lesser of the two volumes from Step 4 (May 1 secured water) and the [DS][[1]] volume calculated at the Time of Need. If the calculations from steps 6 or 7 indicate that a volume of water necessary to meet in-season projected demand shortfalls is greater than the volume from Step 4, no additional water is required.
>
> The Director will review, at the end of the season, the volume and efficiencies of application of surface water, the amount of mitigation water provided by junior ground water users, and may, in the exercise of his professional judgment, readjust the reasonable carryover shortfalls to reflect these considerations.

Id. (internal footnote omitted).

6. On April 17, 2013, the Director issued his *Final Order Regarding April 2013 Forecast Supply (Methodology Steps1 – 4)* ("April Forecast Supply Order"). The April Forecast Supply Order predicted a demand shortfall to the SWC of 14,200 acre-feet for the 2013 irrigation season. *April Forecast Supply Order* at 3. At that time, the only member of the SWC predicted to experience material injury during the 2013 irrigation season was the Twin Falls Canal Company ("TFCC").

7. The Director previously approved CM Rule 43 mitigation plans for the Idaho Ground Water Appropriators, Inc. ("IGWA"). IGWA secured 14,200 acre-feet of storage water to mitigate material injury to the SWC. *Order Confirming IGWA's Notice of Secured Water* (May 22, 2013).

B. April – July Climate

8. The April 2013 Joint Forecast prepared by the United States Army Corps of Engineers and the United States Bureau of Reclamation predicted 2,650,000 acre-feet of natural

[1] The Director has determined the reference in Methodology Order Step 8 to "RISD" is incorrect and should instead reference "DS." As such, the Director has removed RISD from the above quotation and replaced it with DS.

flow at the Heise gage for the period April – July, 2013. *April Forecast Supply Order* at 2. The Joint Forecast "is generally as accurate a forecast as is possible given current data gathering and forecasting techniques." *Methodology Order* at 9.

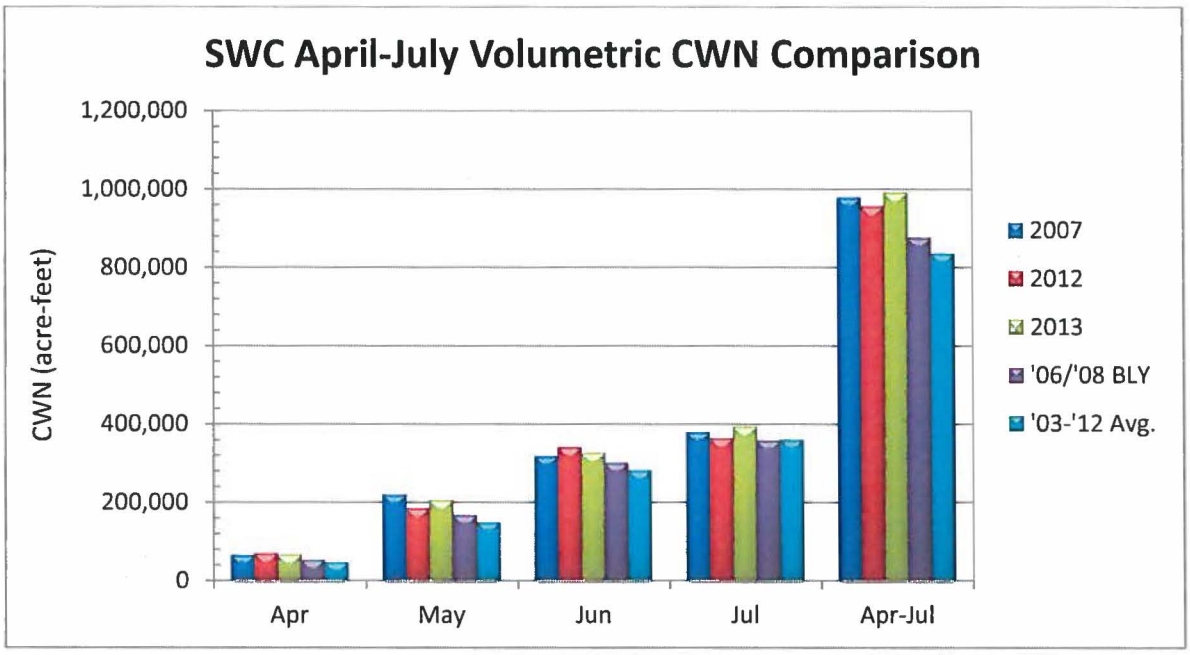
9. The months of May and June were dry. According to NRCS Snotel sites, the Upper Snake received 73% and 24% of average precipitation in May and June, respectively. The National Weather Service's Twin Falls weather station reported 26% and 19% of normal precipitation in May and June, respectively. Twin Falls temperatures were near normal for April, were 1.6 degrees above normal for May, were 3.7 degrees above normal for June, and were 5.7 degrees above normal for July.[2] Because of the hot, dry spring, water supply conditions were less than predicted. The actual Heise natural flow for April – July was 2,279,000 acre-feet, or 371,000 acre-feet less than the April 2013 Joint Forecast.

C. Crop Water Need

10. Crop water need ("CWN") is the project wide volume of irrigation water required for crop growth such that crop development is not limited by water availability. CWN is the difference between the fully realized consumptive use associated with crop development, or evapotranspiration, and effective precipitation. CWN is used as input for calculating reasonable in-season demand ("RISD") for those months of the irrigation season that are complete. It is combined with monthly baseline demands for the remaining months of the irrigation season to arrive at a season total RISD volume. Demand shortfall is then calculated as the difference between the adjusted forecast supply and the RISD. For specifics regarding determination of CWN, s*ee Methodology Order* at 16. Included with this order is a CD with background calculations.

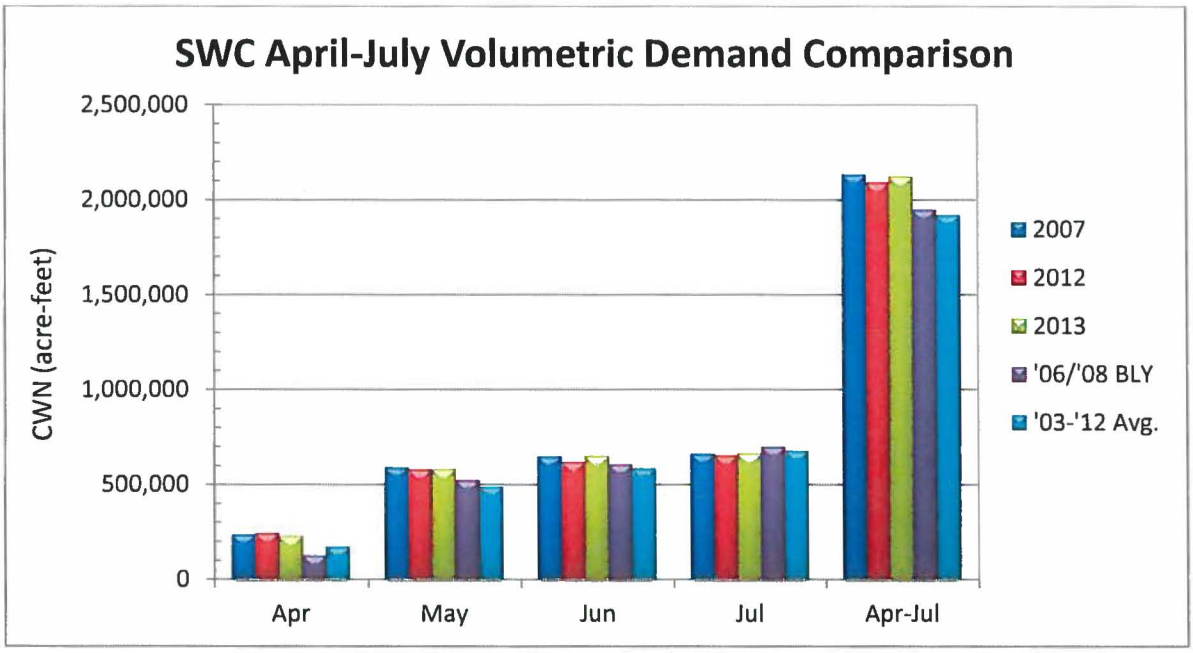
11. As calculated from the beginning of the irrigation season (April 1), the SWC's volumetric CWN for the current water year through the month of July is 991,078 acre-feet. This volume is 118.6% of the April 1 – July 31 ten-year average CWN from 2003 – 2012 and 113.2% of the baseline year CWN (2006/2008). As calculated from April 1 to July 31, from the year 2000 until this year, 2013 has the largest CWN volume of any irrigation season. Over the last ten years (2003 – 2012), the 2007 and 2012 water years have the most similar accumulations of CWN over the same period of the irrigation season. The graph on the following page summarizes April through July monthly volumetric CWN values for 2007, 2012, 2013, the 2003 – 2012 average, and the baseline year (2006/2008).

[2] Precipitation and temperature data obtained from the NOAA National Weather Service Preliminary Monthly Climate Data for the Twin Falls 3SE weather station (Twin Falls Airport).



D. SWC Demand

12. As calculated from the beginning of the irrigation season (April 1), the SWC's 2013 demand, or total irrigation diversion for the current water year through the month of July, is 2,122,426 acre-feet. This volume is 110.6% of the April 1 – July 31 ten-year average demand from 2003 – 2012, and 109.0% of the baseline year demand (2006/2008). Over the last ten years (2003 – 2012), the 2007 and 2012 water years have the most similar demand over the April 1 – July 31 period of the irrigation season. The following graph summarizes April through July monthly volumetric demand values for 2007, 2012, 2013, the 2003 – 2012 average, and the baseline year (2006/2008).



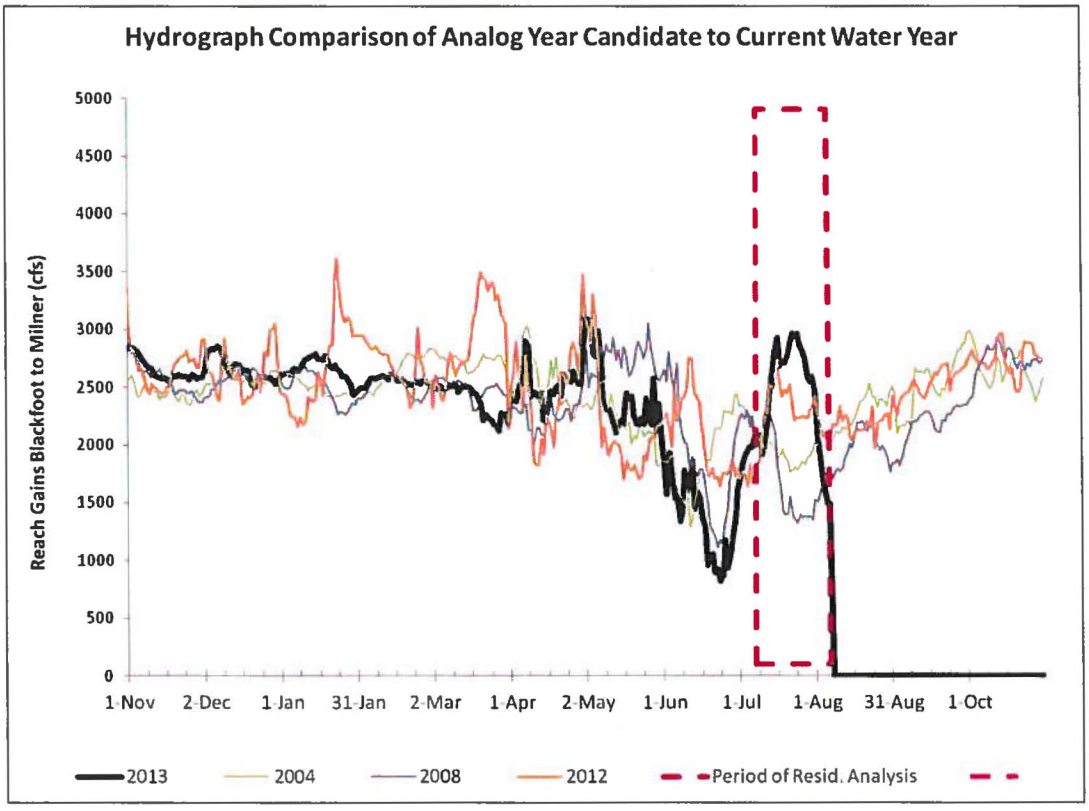
E. Selection of an Analogous Year to Predict Remaining Natural Flow

13. Natural flow diversions for the remainder of the irrigation season were predicted by choosing an analogous year. The Department used a residual analysis[3] carried out at a daily time step to compare the reach gains from July 8 to August 7 for the current water year to historical reach gains for the same time period for the 1991 – 2012 water years. From the residual analysis, four candidate water years were selected: 2012, 2008, 2004, and 1994. These years represent the four years with the smallest average daily residual over the analysis period as summarized in the following table:

Summary of Residual Analysis of Candidate Years

Time Period	2012	2008	2004	1994
11/1-10/31	-7.2%	-1.2%	-3.6%	-10.1%
7/8-8/7	3.5%	25.6%	14.8%	9.5%

14. The following hydrograph compares the current water year to the four candidate years with the most similar reach gains as determined by the residual analysis. The natural flow diversions for each of the candidate years were examined and 2012 was selected as the analog year to predict natural flow diversions for the remainder of the irrigation season. The year 2012 was chosen because the residual analysis showed 2012 was most similar to 2013 conditions when considering the reach gains since November 1 and most recent 31 days.



[3] The daily residual is expressed as a percentage and defined as the difference between the current water year reach gain (CY) and the historical reach gain (HY) divided by the current water year reach gain. R = (CY – HY)/CY.

F. Adjustments to Total Supply

15. Adjustments were made to both the natural flow and storage water supplies, as shown on the following page. Adjustments to natural flow include 6,725 acre-feet of natural flow wheeled to Southwest Irrigation District through Burley Irrigation District and Milner Irrigation District. Preliminary adjustments to the storage water supply that were used in this analysis were published by Water District 01 in its weekly water reports dated June 11, 2013 – July 30, 2013. The only adjustments made to the stored water supply in the table below were for the Minidoka Credit. Adjustments for wheeled storage water were not included in the storage adjustment because the water is not available for use by the SWC. Adjustments for wheeled storage water that were published in the weekly reports were not included as an adjustment because wheeled water does not actually increase the amount of water available for use by the SWC. Water supplied to or from the rental pool were not included in the adjustments. An adjustment for water supplied to or from the rental pool would artificially increase or decrease the shortfall obligation.

G. Revised Shortfall Prediction

16. DS, or Demand Shortfall, is calculated as the difference between RISD and the forecast supply. When determined during the irrigation season, the adjusted forecast supply is the sum of the actual natural flow diversions having already occurred, the predicted natural flow diversions as established by an analog year, and the actual storage allocation. Actual natural flow diversions having already occurred are determined by the Department's water rights accounting model. The natural flow diversions for the remainder of the irrigation season are estimated based on a historical analog year with similar gains in the Blackfoot to Milner reach. The year 2012 is the analog year selected to estimate natural flow diversions for the remainder of the irrigation season as discussed above in Section E. Storage allocation is determined by Water District 01 on the day of allocation.

17. Based on the above, and as summarized in the table below, the Director predicts, at this time, that AFRD2 and TFCC are expected to experience material injury.

	Natural Flow Diverted through 8/7	Predicted Natural Flow 8/8 to 10/31	Natural Flow Adjustment	Preliminary Storage Allocation	Minidoka Credit Adjustment	Total Supply	RISD	Shortfall
A&B	0	0	0	107,790		107,790	64,796	0
AFRD2	23,006	0		383,334	1,000	407,340	461,373	54,000
BID	75,811	4,008	(3,714)	213,604	5,130	294,839	291,737	0
Milner	7,356	0	(3,011)	78,597		82,941	54,089	0
Minidoka	106,340	5,621		306,026	8,370	426,357	419,324	0
NSCC	270,139	54,431		808,260	(7,750)	1,125,080	1,117,188	0
TFCC	563,521	309,078		239,546	(6,750)	1,105,394	1,156,605	51,200
							Total	105,200

18. At this time, the current, predicted shortfall to the SWC's RISD is 105,200 acre-feet. However, consistent with the Methodology Order, "junior ground water users are required to provide the lesser of the two volumes from Step 4 (May 1 secured water) [14,200 acre-feet] and the [DS] volume calculated at the Time of Need [105,200 acre-feet]." *Methodology Order* at 37.[4] IGWA has secured 14,200 acre-feet of storage water for mitigation. *Order Confirming IGWA's Notice of Secured Water.*

19. Based on current information, the Time of Need is predicted to occur on August 29, 2013. Because the Time of Need is reasonably certain, the Director will not implement Step 7 for this irrigation season. *Methodology Order* at 37. No later than August 29, 2013, the 14,200 acre-feet of mitigation water secured by IGWA must be provided to AFRD2 and TFCC, as explained in the following paragraph.

20. The current, predicted shortfall to the SWC is 105,200 acre-feet. AFRD2's portion of the shortfall is 54,000 acre-feet, or 51.4% of the current, predicted shortfall. TFCC's portion of the shortfall is 51,200 acre-feet, or 48.6% of the current, predicted shortfall. Using the above percentages to allocate the 14,200 acre-feet of mitigation water, 7,300 acre-feet shall be provided to AFRD2, and 6,900 acre-feet shall be provided to TFCC.

CONCLUSIONS OF LAW

1. Based on the above, it is reasonably certain that AFRD2 and TFCC are materially injured. Based on current information, it is reasonably certain that the Time of Need is expected to occur on August 29, 2013. Because the Time of Need is reasonably certain, the Director will not implement Step 7 for this irrigation season. *Methodology Order* at 37.

2. The 14,200 acre-feet of mitigation storage water secured by IGWA shall be allocated by the Watermaster for Water District 01 as follows:

AFRD2	7,300 acre-feet
TFCC	6,900 acre-feet

3. Upon the issuance of this order, but no later than August 30, 2013, the Director instructs the watermaster for Water District 01 to distribute the mitigation storage water secured by IGWA to the accounts of AFRD2 and TFCC, as described, above.

4. As stated previously, the current, predicted shortfall to the SWC's RISD is 105,200 acre-feet. The Methodology Order requires junior ground water users to "provide the lesser of the two volumes from Step 4 (May 1 secured water [14,200 acre-feet]) and the [DS] volume calculated at the Time of Need [105,200 acre-feet]." *Methodology Order* at 37. The Director concludes, as stated previously, that Step 8 incorrectly references "RISD" in the above quoted sentence, when it should reference "DS." For purposes of clarity, Step 8 should read as follows:

[4] As stated previously in footnote 1, the Director has determined the reference in Methodology Order Step 8 to "RISD" is incorrect and should instead reference "DS." As such, the Director has removed RISD from the above quotation and replaced it with DS.

> At the Time of Need, junior ground water users are required to provide the lesser of the two volumes from Step 4 (May 1 secured water) and the ~~RISD~~ DS volume calculated at the Time of Need. If the calculations from steps 6 or 7 indicate that a volume of water necessary to meet in-season projected demand shortfalls is greater than the volume from Step 4, no additional water is required.

Methodology Order at 37 (strikethrough and underline added).

5. The second paragraph of Step 8 also provides:

> The Director will review, at the end of the season, the volume and efficiencies of application of surface water, the amount of mitigation water provided by junior ground water users, and may, in the exercise of his professional judgment, readjust the reasonable carryover shortfalls to reflect these considerations.

Id. at 37.

6. The Director will consider the above when determining reasonable carryover shortfalls, if any, to the SWC.

ORDER

Based upon and consistent with the foregoing, IT IS HEREBY ORDERED as follows:

AFRD2 and TFCC are materially injured. Because the Time of Need is reasonably certain, the Director orders the Watermaster for Water District 01, upon issuance of this order, but no later than August 30, 2013, to assign the mitigation storage water secured by IGWA to the accounts of AFRD2 and TFCC. The Watermaster for Water District 01 shall allocate 7,300 acre-feet to AFRD2, and 6,900 acre-feet to TFCC.

IT IS FURTHER ORDERED that pursuant to sections 67-5270 and 67-5272, Idaho Code, any party aggrieved by the final order may appeal the final order to district court by filing a petition in the district court of the county in which a hearing was held, the final agency action was taken, the party seeking review of the order resides, or the real property or personal property that was the subject of the agency action is located. The appeal must be filed within twenty-eight (28) days: (a) of the service date of the final order; (b) of an order denying petition for reconsideration; or (c) the failure within twenty-one (21) days to grant or deny a petition for reconsideration, whichever is later. *See* Idaho Code § 67-5273. The filing of an appeal to district court does not in itself stay the effectiveness or enforcement of the order under appeal.

Dated this 27th day of August, 2013.

GARY SPACKMAN
Director

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 27th day of August, 2013, the above and foregoing, was served by the method indicated below, and addressed to the following:

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