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 2010 FORECAST SUPPLY** ***(METHODOLOGY STEP 6)***

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 apply Step 6 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.

3. On June 24, 2010, the Director issued his *Final Order Regarding April 2010 Forecast Supply (Methodology Steps 3 & 4)* ("April Forecast Supply Order"). The April Forecast Supply Order predicted a demand shortfall to the SWC of 56,600 acre-feet for the 2010 irrigation season. *April Forecast Supply Order* at 9. At that time, the only member of the SWC predicted to experience material injury during the 2010 irrigation season was the Twin Falls Canal Company ("TFCC").

4. The Idaho Ground Water Appropriators, Inc. ("IGWA") has approved CM Rule 43 mitigation plans in place and have secured 57,000 acre-feet to mitigate the predicted shortfall, in addition to a 5,707 acre-feet mitigation credit.

B. April – July Climate

5. In April, the Natural Resources Conservation Service ("NRCS") predicted that 2010 would be the second driest winter in the Upper Snake of the last 50 years. The April forecast prepared jointly by the United States Army Crop of Engineers and the United States Bureau of Reclamation predicted 1,940,000 acre-feet of natural flow at the Heise gage for the period April – July.

6. The months of April and May were unusually wet and cold. According to NRCS Snotel sites, the Upper Snake received 140% and 119% of average precipitation in April and May, respectively. The National Weather Service's Twin Falls weather station reported 139% and 136% of average precipitation in April and May, respectively. June and July precipitation were below normal. Twin Falls temperatures were near normal for April, were 4.2 degrees below normal for May, were near normal for June, and were 4.3 degrees above normal for July.[1] Because of the cool wet spring, the water supply improved dramatically. The actual Heise natural flow for April – July was 2,598,000 acre-feet, or 658,000 acre-feet greater than the April joint forecast.

C. Crop Water Need

7. 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, *see Methodology Order* at 16. Included with this order is a CD with background calculations.

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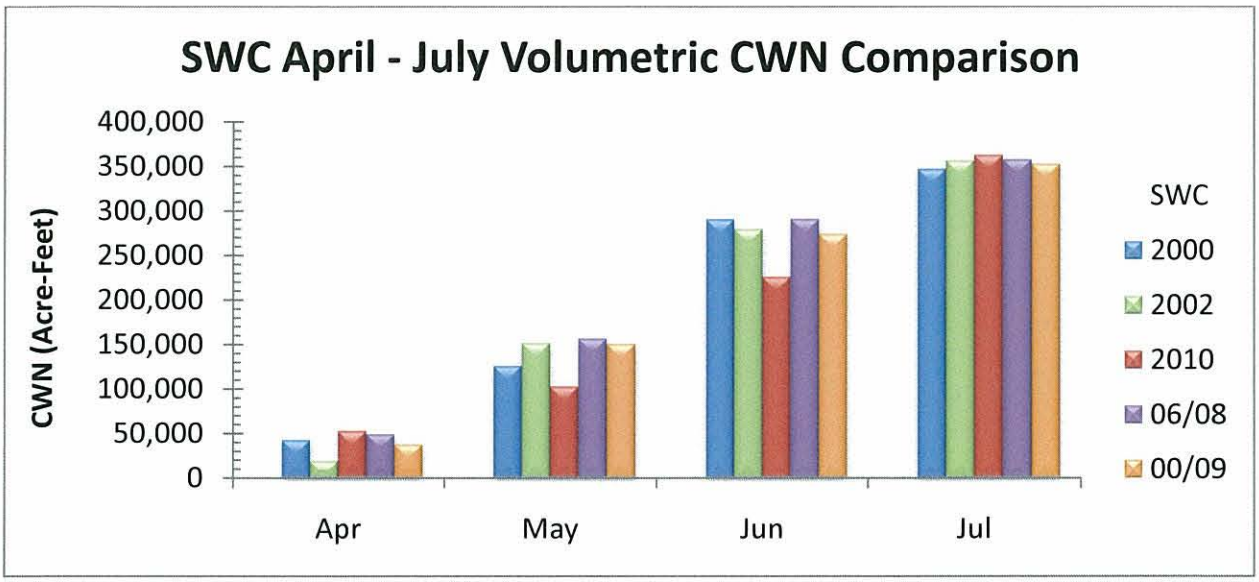
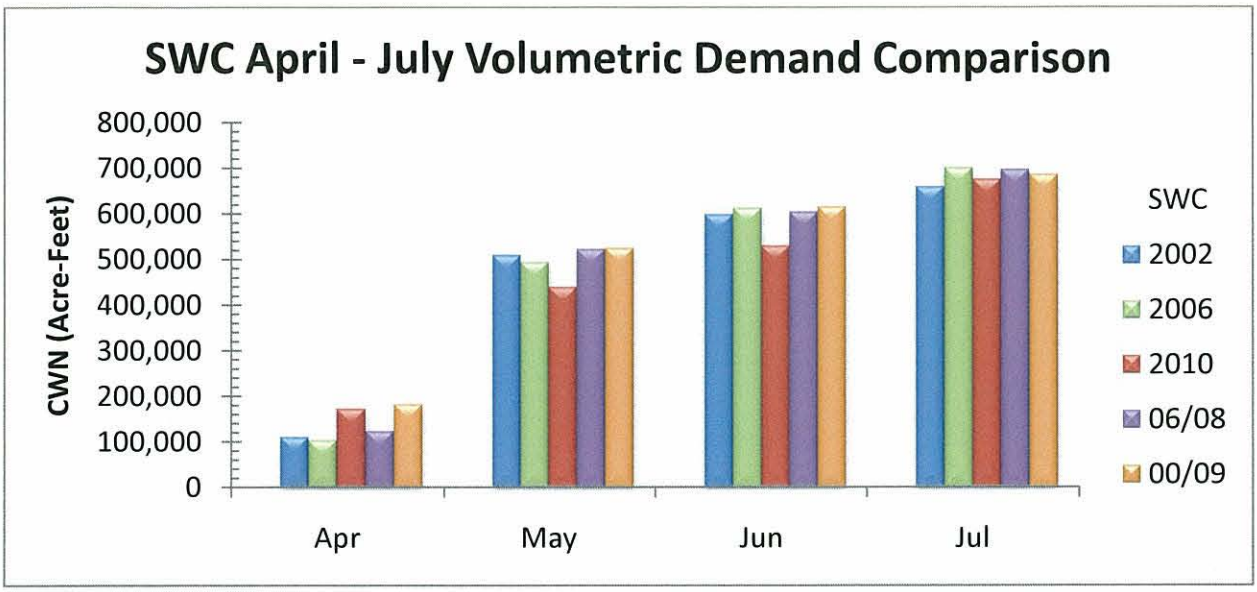
[1] Precipitation and temperature data obtained from the NOAA National Weather Service Preliminary Monthly Climate Data for the Twin Falls 3SE weather station (Twin Falls Airport).

8. The SWC's volumetric CWN for the current water year through the month of July is 744,509 acre-feet. This volume is 8.7% less than the ten year average CWN from 2000 – 2009 and 12.9% less than the baseline year CWN (2006/2008). Over the last ten years (2000 – 2009), the 2000 and 2002 water years have the most similar CWN accumulation for the first half of the irrigation season. The following graph summarizes April through July monthly volumetric CWN values for 2000, 2002, 2010, the 2000 – 2009 average, and the baseline year (2006/2008).



D. SWC Demand

9. The SWC's demand, or total irrigation diversion for the current water year through the month of July, is 1,816,998 acre-feet. This volume is 9.5% less than the ten year average demand from 2000 – 2009 and 6.7% less than the baseline year demand (2006/2008). Over the last ten years (2000 – 2009), the 2002 and 2006 water years have the most similar demands for the first half of the irrigation season. The following graph summarizes monthly volumetric demands for 2002, 2006, 2010, the 2000 – 2009 average, and the baseline year.



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

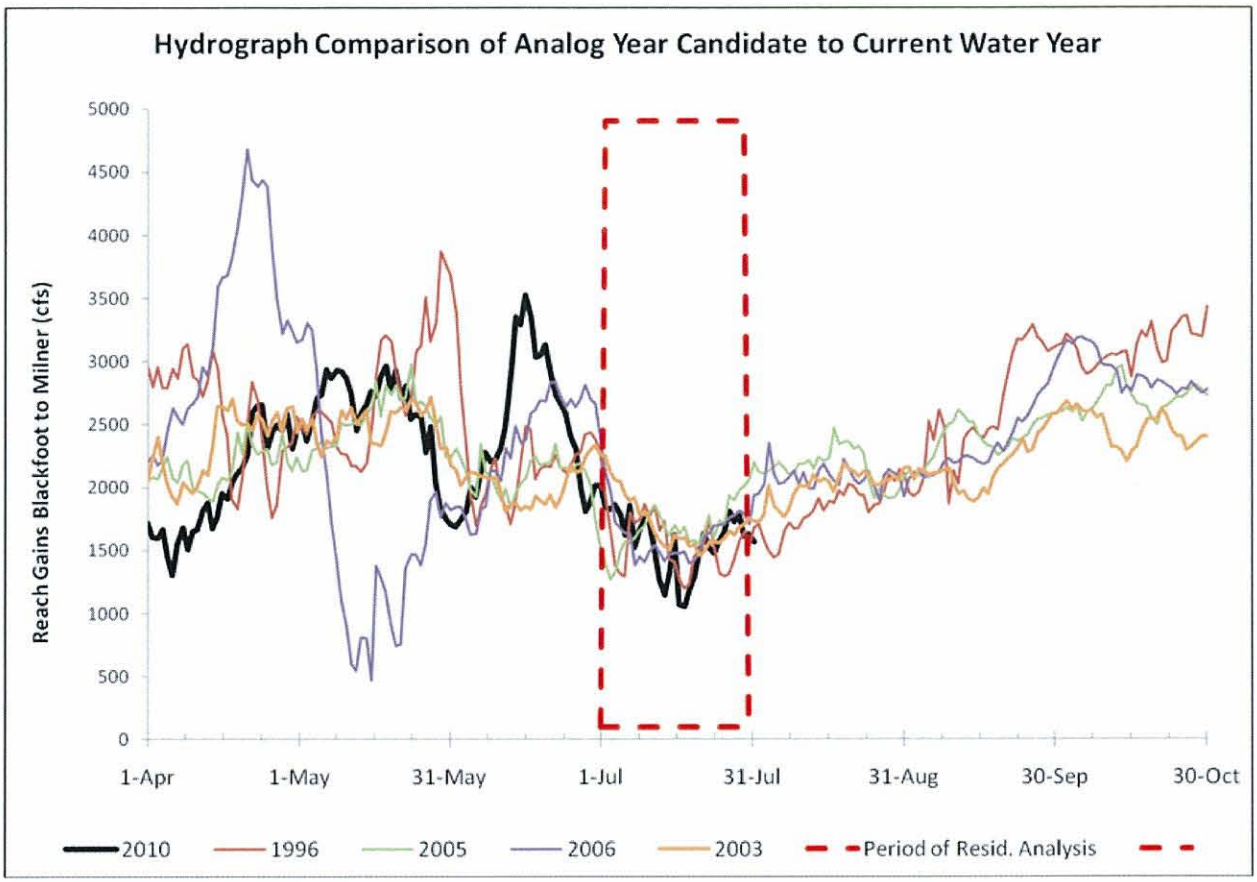
10. Natural flow diversions for the remainder of the irrigation season were predicted by choosing an analogous year. The Department used a residual analysis[2] carried out at a daily time step to compare the reach gains from July 1 to July 31 for the current water year to historical reach gains for the same time period for the 1991 – 2009 water years. From the residual analysis, four candidate water years were selected: 1996, 2003, 2005, and 2006. 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

Period of Analysis	1996	2003	2005	2006
11/1-7/31	-23.1%	-9.0%	-8.0%	-10.5%
7/1-7/31	-0.9%	-11.4%	-9.4%	-5.3%

11. The hydrograph shown on the following page 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 2003 was selected as the analog year to predict natural flow diversions for the remainder of the irrigation season. 2003 was selected because it represented the best fit when considering the SWC as a whole. 2003 was also selected because it represents a conservative estimate of natural flow diversions for the remainder of the season.

[2] The daily residual, or more accurately the daily relative residual (R), 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

12. 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 South West 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 Report dated July 20, 2010. 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 Report 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 the rental pool was not included in the adjustments. An adjustment for water supplied to the rental pool would artificially increase the shortfall obligation.

G. Revised Shortfall Prediction

13. Based on the above, and as summarized in the table below, the Director predicts, at this time, that no member of the SWC is expected to experience material injury.

	Natural Flow Diverted through 7/31	Predicted Natural Flow 8/1 to 10/31	Natural Flow Adjustment	Preliminary Storage Allocation	Preliminary Storage Adjustments	Total Supply	RISD	Shortfall
A&B	9,374	-	-	135,382	-	144,756	50,142	-
AFRD2	76,406	-	-	387,132	1,000	464,538	403,571	-
BID	91,856	1,274	(3,714)	222,794	5,130	317,340	208,331	-
Milner	14,067	-	(3,011)	87,992	-	99,048	45,046	-
MID	136,703	1,803	-	360,576	8,370	507,452	304,881	-
NSCC	336,806	41,411	-	845,875	(7,750)	1,216,342	968,922	-
TFCC	495,893	305,010	-	241,919	(6,750)	1,036,072	1,000,025	-
							Total	0

14. Future conditions may or may not match predictions. The reach gains relied upon by TFCC may be less than predicted, which could result in a finding of material injury later in the season. Because injury is not predicted to occur at this time, the Director will not estimate, at this time, when or whether the Time of Need will occur.

CONCLUSIONS OF LAW

1. Based on the above, the Director predicts, at this time, that no member of the SWC will be materially injured.

2. The Director acknowledges, however, that reach gains relied upon by TFCC may be less than predicted, which could lead to a finding of material injury. The Director therefore reserves the right to revise his prediction of no material injury if conditions warrant. Once the Director is able to determine with reasonable certainty that injury will or will not occur, the Director will issue a subsequent, final order.

3. Because of the uncertainty associated with reach gains for the remainder of the irrigation season, the watermaster for Water District 01 is directed not to release or deliver any of IGWA's secured water (57,000 acre-feet) until further notice by the Director.

ORDER

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

The Director predicts, at this time, that no member of the SWC will be materially injured. However, because of the uncertainty associated with reach gains for the remainder of the irrigation season, the Director will continue to monitor and evaluate conditions. Once the Director is able to determine with reasonable certainty that injury will or will not occur, the Director will issue a subsequent, final order.

IT IS FURTHER ORDERED that the Watermaster for Water District 01 shall not release or deliver IGWA's 57,000 acre-feet of secured water until further notice by the Director.

IT IS FURTHER ORDERED that, pursuant to Department Rule of Procedure 710, IDAPA 37.01.01.710, this is an interlocutory order and is not subject to review by reconsideration or appeal. The Director may review this interlocutory order pursuant to Rule 711, IDAPA 37.01.01.711.

Dated this 10th day of August, 2010.

GARY SPACKMAN
Interim Director

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 18th day of August, 2010, the above and foregoing, was served by the method indicated below, and addressed to the following:

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