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 JULY 2023 FORECAST SUPPLY** ***(METHODOLOGY STEPS 7–8)***

The Director of the Idaho Department of Water Resources ("Department") finds, concludes, and orders as follows:

FINDINGS OF FACT

A. Background

1. On July 19, 2023, the Director issued the *Sixth Final Order Regarding Methodology for Determining Material Injury to Reasonable In-Season Demand and Reasonable Carryover* ("Methodology Order"). The Methodology Order established nine steps for determining material injury to members of the Surface Water Coalition ("SWC"). This order applies Steps 7 and 8 of the Methodology Order.

2. On April 21, 2023, the Director issued the *Final Order Regarding April 2023 Forecast Supply (Methodology Steps 1–3)* ("April Forecast Supply Order"). The April Forecast Supply Order predicted a demand shortfall to the SWC of 75,200 acre-feet for the 2023 irrigation season. *April Forecast Supply Order* at 3. At that time, the only member of the SWC predicted to experience material injury during the 2023 irrigation season was Twin Falls Canal Company ("TFCC"). The Director ordered that, by May 5, 2023, ground water users with consumptive water rights "junior to December 30, 1953, within the Eastern Snake Plain Aquifer area of common ground water supply shall establish, to the satisfaction of the Director, that they can mitigate for their proportionate share of the predicted [demand shortfall] of 75,200 acre-feet in accordance with an approved mitigation plan." *Id.* at 6. The Director also ordered that, "[i]f a junior ground water user cannot establish . . . that they can mitigate for their proportionate share of the predicted [demand shortfall] in accordance with an approved mitigation plan, the Director will issue an order curtailing the junior-priority ground water user." *Id.*

3. On May 1, 2023, the Director sent notice to junior ground water users that a hearing on the April Forecast Supply Order would be held June 6–10, 2023, and the Director would wait until after the hearing to decide whether to issue a curtailment order.

4. On July 19, 2023, the Director issued the *Order Revising April 2023 Forecast Supply and Amending Curtailment Order (Methodology Steps 5 & 6)* ("July Forecast Supply Order"), revising the in-season demand shortfall (IDS) to 0 acre-feet. *July Forecast Supply Order* at 8. No curtailment was ordered because there was no IDS.

5. Step 7 of the Methodology Order requires:

> 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) recalculate RISD [(reasonable in-season demand)]; (2) issue a revised FS [(forecast supply)]; and (3) establish the Time of Need. The revised FS for each SWC entity is the sum of the year-to-date actual natural flow diversions, the forecasted natural flow supply for the remainder of the season, and the storage allocation for each member of the SWC. The forecasted natural flow supply for the remainder of the season will be based on analogous year(s) with similar Blackfoot to Milner reach gains. The storage allocation will be based on the actual preliminary storage allocations issued by the BOR [(United States Bureau of Reclamation)] and Water District 01.
>
> This information will be used to recalculate RISD and adjust the projected IDS for each member of the SWC. RISD will be calculated utilizing the project efficiency, BD [(baseline year demand)], and the cumulative actual CWN [(crop water need)] determined up to that point in the irrigation season. The Director will then issue revised RISD and IDS values.

Methodology Order at 44.

6. Step 8 of the Methodology Order requires:

> At the Time of Need, junior ground water users are required to deliver to each injured member of the SWC the Step 7 revised IDS calculated at the Time of Need. Alternatively, any additional mitigation obligation calculated in Step 6 and Step 7 can be satisfied from each SWC member's reasonable carryover if (a) the reasonable carryover exceeds the additional mitigation obligation, and (b) the junior ground water users secure sufficient water to replace the reasonable carryover pursuant to an approved mitigation plan.
>
> The Director will review, at the end of the season, the volume and efficiencies of application of surface water, the amount of mitigation water delivered 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 44–45.

B. Climate

7. The April 2023 Joint Forecast prepared by the United States Army Corps of Engineers and the United States Bureau of Reclamation ("BOR") predicted 3,700,000 acre-feet of natural flow at the Heise gage for the period April–July 2023. *April Forecast Supply Order* at 2. The Joint Forecast "is generally as accurate a forecast as is possible using current data gathering and forecasting techniques." *Methodology Order* at 19.

8. The months of April and June on the Eastern Snake Plain were relatively cool, whereas the months of May and July were relatively warm. The months of April, June, and July on the Eastern Snake Plain were relatively dry, whereas the month of May was relatively wet. According to data measured at the Natural Resources Conservation Service's SNOTEL sites in the Snake River Basin above Heise, the basin received 96%, 64%, 178%, and 68% of average precipitation in April, May, June, and July, respectively. The National Weather Service's Twin Falls weather station reported 20%, 132%, 79%, and 3% of normal precipitation in April, May, June, and July, respectively. Twin Falls temperatures were 1.6 degrees below normal for April, 4.1 degrees above normal for May, 0.6 degrees below normal for June, and 4.0 degrees above normal for July.[1]

C. Reasonable In-Season Demand

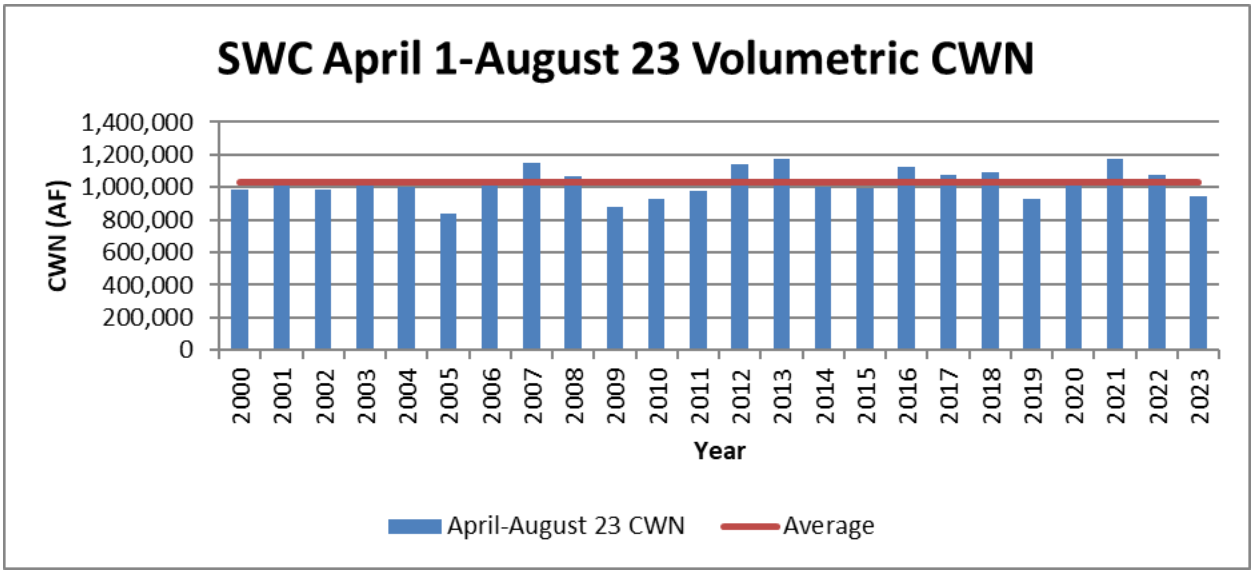
9. RISD is the volume of water that would be required to be diverted at the point of diversion during the year of evaluation to grow the specific crops within the service area of the entity. In April, the demand from the 2018 baseline year (BLY) represents the RISD. During the irrigation season, the RISD for the already expired portion of the irrigation season is recalculated by dividing the actual crop water need (CWN) for each entity by the project efficiency for that entity. For the future remainder of the irrigation season, the RISD is the demand predicted from the 2018 BLY. RISD is calculated on a monthly timestep.

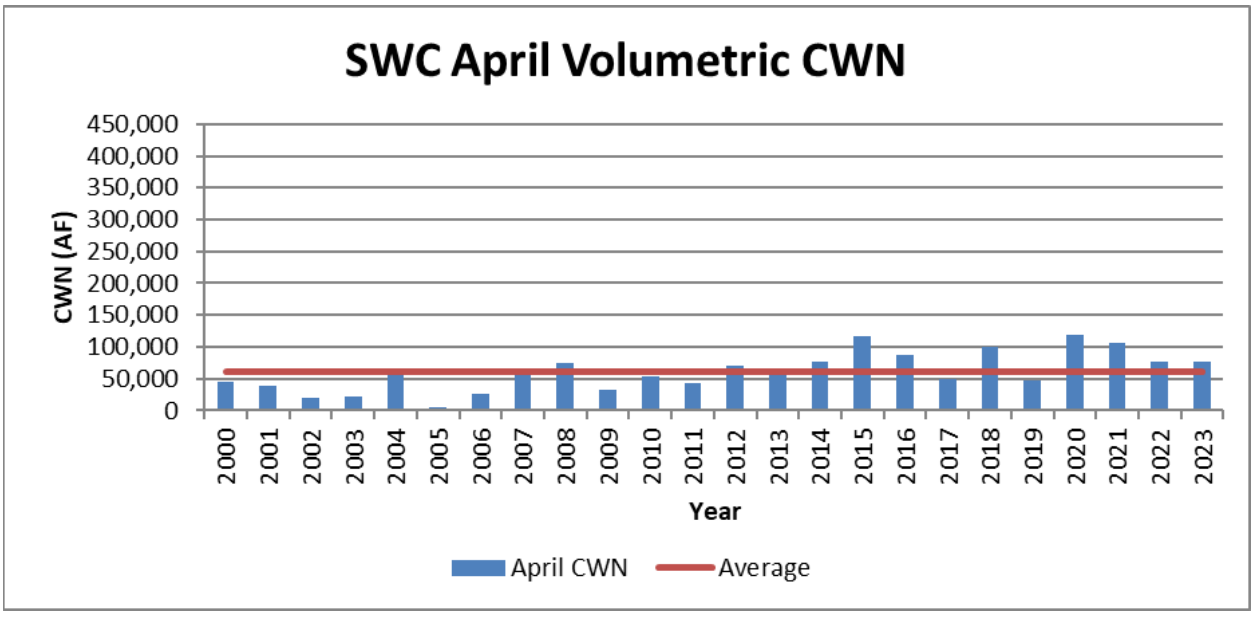
i. Crop Water Need

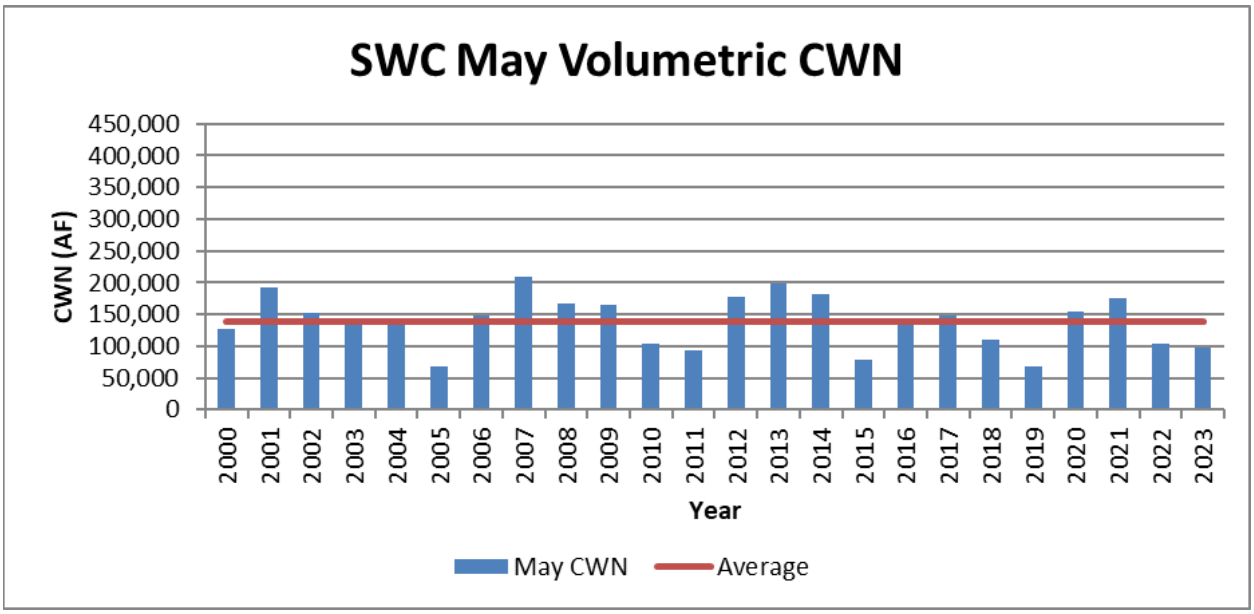
10. CWN is the project wide volume of irrigation water required for crop growth so crop development is not limited by water availability. CWN is the difference between the fully realized consumptive use associated with crop development, or evapotranspiration, and effective precipitation. CWN is an input variable for calculating RISD for those months of the irrigation season that are complete. Actual RISD for the completed portion of the irrigation season is combined with monthly predicted baseline demands for the remaining months of the irrigation season to calculate 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 page 15 of the Methodology Order.

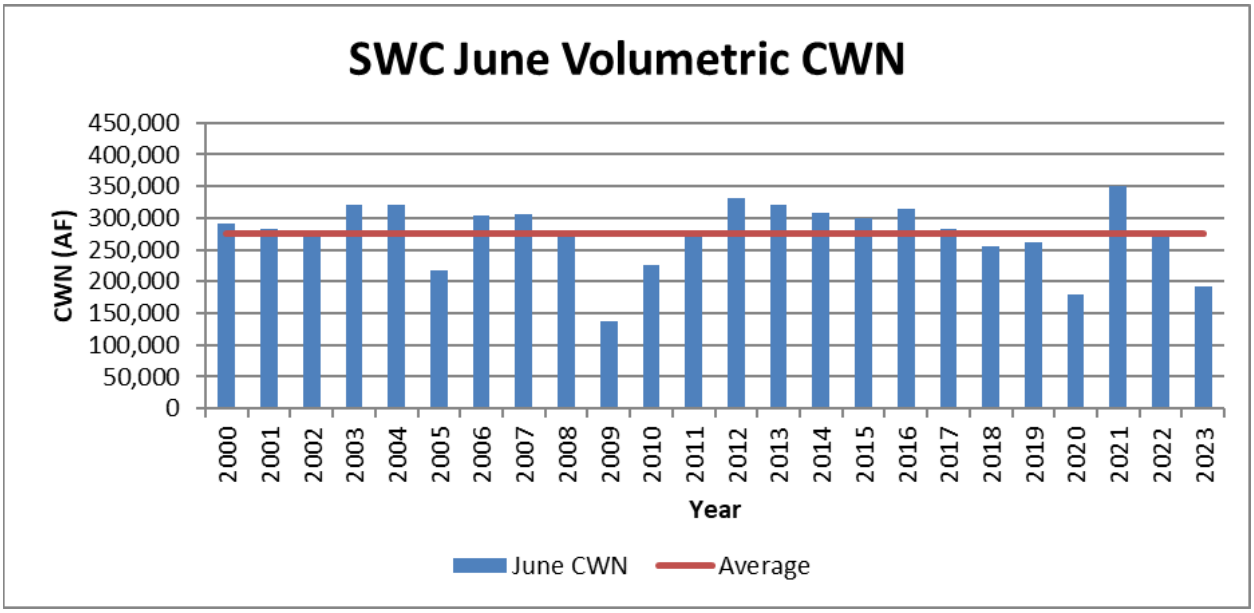
[1] Precipitation and temperature data obtained from the NOAA National Weather Service Preliminary Monthly Climate Data for the Twin Falls weather station (Twin Falls Airport).

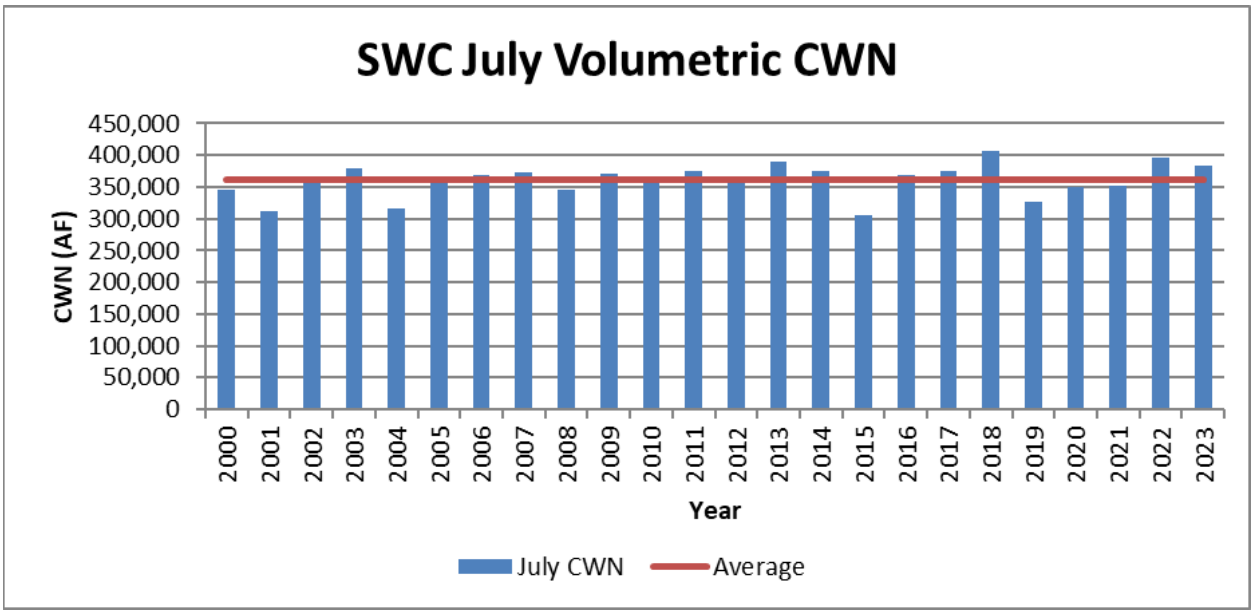
11. As calculated from the beginning of the irrigation season (April 1), the SWC's volumetric CWN for the current water year through August 23 is 943,388 acre-feet. This volume is 88% of the April 1 through August 23 ten-year average CWN (2013-2022) and 86% of the CWN for the (2018) BLY. As calculated from April 1 through August 23, from the year 2000 to now, 2023 has the twentieth largest CWN volume of any irrigation season. The following graphs summarize monthly volumetric CWN values.

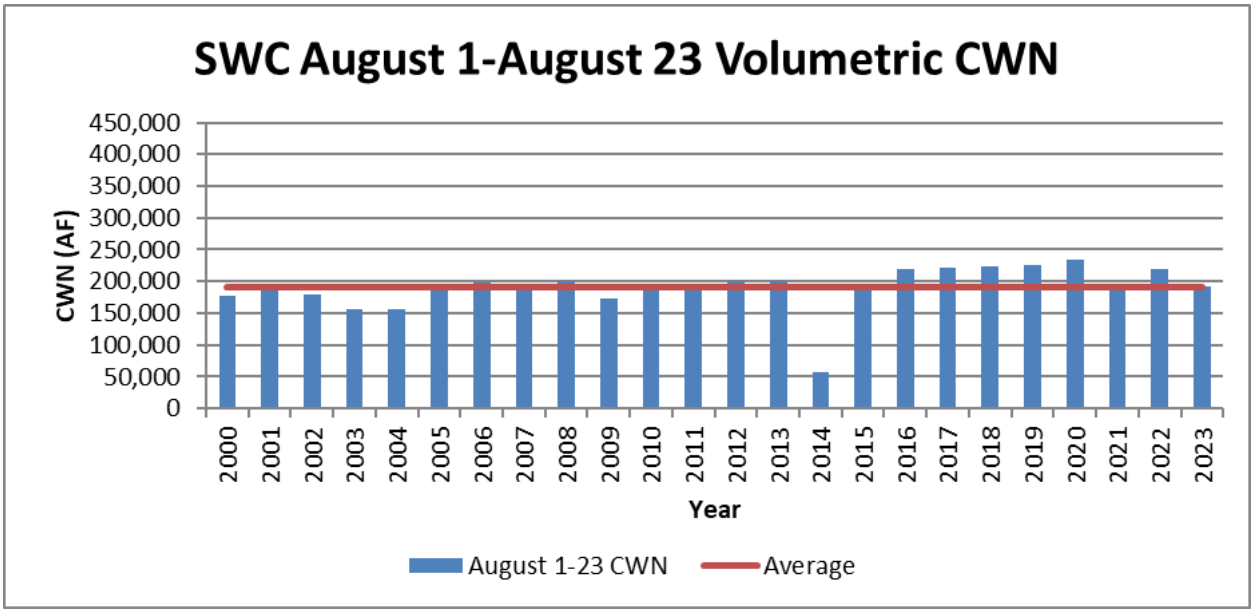





SWC May Volumetric CWN
CWN (AF)
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Year
May CWN
Average


SWC June Volumetric CWN
CWN (AF)
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Year
June CWN
Average





ii. Extension of BLY

12. The RISD for the future portion of the irrigation season is the August 24–October 31 demand for (2018) BLY. The numeric August 24–October 31 demand values are shown in the table in Finding of Fact 13 below.

iii. Calculation of RISD

13. As calculated from the beginning of the irrigation season (April 1), the SWC's volumetric RISD for 2023 through August 23 is 2,292,923 acre-feet. This volume is 92% of the April 1–August 23 ten-year average RISD (2013-2022) and 89% of the April 1–August 23 demand for the (2018) BLY. As calculated from April 1 to August 23, from the year 2000 until this year, 2023 has the nineteenth largest RISD volume of any irrigation season. The recalculated RISD on August 23 of the 2023 irrigation season by entity is summarized in column six of the following table:

	April 1–August 23 CWN (AF)	Range of April 1–August 23 Monthly Project Efficiencies	April 1–August 23 RISD (AF)	August 24–October 31 Demand for 2018 BLY (AF)	Recalculated RISD (AF)
A&B	24,909	0.46-1.05	38,730	13,098	51,828
AFRD2	107,439	0.22-0.44	283,119	117,603	400,722
BID	75,053	0.31-0.52	168,008	52,276	220,284
Milner	22,364	0.38-0.87	37,295	12,956	50,251
Minidoka	134,449	0.35-0.64	257,324	70,746	328,070
NSCC	248,881	0.23-0.48	632,086	229,376	861,462
TFCC	330,294	0.29-0.58	711,691	280,361	992,052

D. Forecast Supply

14. When determined during the irrigation season, the forecast supply (FS) is the sum of the year-to-date actual natural flow diversions, the forecasted natural flow supply for the remainder of the season, and storage allocations for each member of the SWC. *Methodology Order* at 43. Actual natural flow diversions for the already expired portion of the irrigation season are extracted from the Department's water rights accounting program. The forecasted natural flow supply for the remainder of the irrigation season is based on the selection of an analogue year with similar Blackfoot to Milner reach gains. *Id*. at 44. Storage allocations are established by the BOR and Water District 01 ("WD1") after the day of allocation. *Id*.

i. Sum of Actual Natural Flow Diverted

15. Actual natural flow diverted for the period April 1 through August 23 for each SWC member are summarized in the table contained within the Summary of Forecast Supply section in Finding of Fact 20.

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

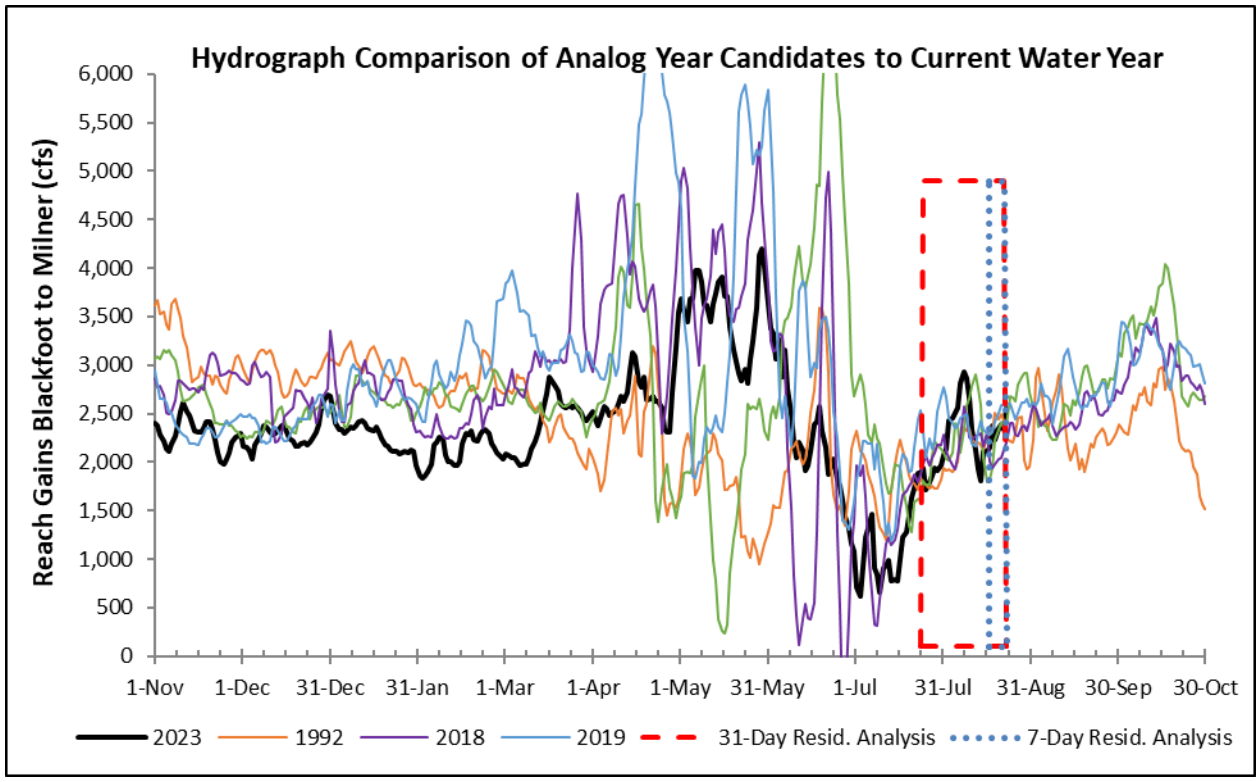
16. Natural flow diversions for the remainder of the irrigation season were predicted by choosing an analogue year. The Department used a residual analysis[2] completed on a daily time step to compare the reach gains from July 24 to August 23 for the current water year to historical reach gains for the same period for the 1991–2022 water years. Based on its residual analysis and a qualitative review, the Department selected four candidate years: 1992, 2009, 2018, and 2019. These years represent the four years with the most similar reach gains (i.e., the lowest average residual value over a specified range) over the analysis period and the residuals are summarized in the following table:

Summary of Residual Analysis of Candidate Years

Time Period	1992	2009	2018	2019
7-Day (8/17–8/23)	-2.4%	5.8%	12.3%	-5.6%
31-Day (7/24–8/23)	5.3%	-0.3%	2.7%	-9.5%

[2] 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.

17. 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 and qualitative review. The Department examined natural flow diversions for each of the candidate years and selected 2009 as the analogue year used to predict natural flow diversions for the remainder of the irrigation season. The Department chose 2009 because the residual analysis and qualitative review demonstrated 2009 was most like 2023 conditions when considering the reach gains for the most recent 7-day and 31-day periods.



iii. Storage Allocations

18. Preliminary storage allocation values for each member of the SWC were established by the BOR and WD1 and published in WD1's preliminary Storage Report on August 1, 2023.[3] Storage allocation values for each SWC member are summarized in the table in Finding of Fact 20 below.

iv. Adjustments to Total Supply

19. The natural flow and storage water supplies were both adjusted as shown in the table in Finding of Fact 20 below. Adjustments to natural flow include water delivered to Southwest Irrigation District by BID and Milner, 3,714 acre-feet and 3,011 acre-feet, respectively. The only adjustments made to the stored water supply were for the Minidoka Return Flow Credit.[4] The Department did not adjust SWC water supplies for wheeled storage water published in WD1's weekly reports because wheeled water does not increase the amount of water available for use by the SWC. The Department did not adjust SWC water supplies to account for water supplied to or from the rental pool because these transactions artificially increase or decrease the shortfall obligation.

v. Summary of Forecast Supply

20. The table below contains the individual components of the FS for each of the SWC members.

	April 1–August 23 Natural Flow Diverted (AF)	August 24–October 31 Predicted Natural Diversions Flow (AF)	Natural Flow Adjustment (AF)	Preliminary Storage Allocation (AF)	Minidoka Credit Adjustment (AF)	Forecast Supply (AF)
A&B	15,604	0	0	132,888	0	148,493
AFRD2	148,167	105	0	382,422	1,000	531,694
BID	117,847	6,513	(3,714)	220,083	5,130	345,859
Milner	19,451	79	(3,011)	88,090	0	104,609
Minidoka	154,066	9,295	0	336,711	8,370	508,442
NSCC	440,204	53,123	0	834,525	(7,750)	1,320,103
TFCC	645,310	240,418	0	238,561	(6,750)	1,117,539

E. Revised Shortfall Prediction

21. Demand Shortfall is calculated as the difference between RISD and the FS.

[3] The preliminary Storage Report may be viewed at: 2023-08-01-preliminary-storage-report.pdf (waterdistrict1.com).

[4] For an explanation of the Minidoka Credit, see pages 125–26 of *Concepts, Practices, and Procedures Used to Distribute Water Within Water District #1*, which can be found at: https://www.waterdistrict1.com/media/uabos05r/water-accounting-manual.pdf.

22. Based on the methods described above, and as summarized in the following table, the Director predicts, at this time, that no SWC members are materially injured by junior ground water pumping.

	Forecast Supply (AF)	RISD (AF)	Shortfall (AF)
A&B	148,493	51,828	0
AFRD2	531,694	400,722	0
BID	345,859	220,284	0
Milner	104,609	50,251	0
Minidoka	508,442	328,070	0
NSCC	1,320,103	861,462	0
TFCC	1,117,539	992,052	0
		Total	0

23. The current, predicted shortfall to the SWC's RISD is 0 acre-feet.

F. Time of Need

24. The Time of Need is established by predicting the day in which the remaining storage allocation will be equal to reasonable carryover. *Methodology Order* at 21. By predicting the SWC diversions for the remainder of the 2023 irrigation season with the 2009 analogous year diversions, there will not be a time this year when the remaining storage allocation will be equal to the reasonable carryover, so there is no Time of Need this year.

CONCLUSIONS OF LAW

1. Because the predicted shortfall to the SWC's RISD is 0 acre-feet and there is no Time of Need this year, there is no mid-season in-season demand shortfall to the SWC members and no curtailment order is necessary.

ORDER

Based upon and consistent with the foregoing, IT IS HEREBY ORDERED that there is no mid-season in-season demand shortfall to the SWC members.

Dated this 31st day of August 2023.

GARY SPACKMAN
Director

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 31st day of August 2023, a true and correct copy of the foregoing was served by the method indicated below, and addressed to the following:

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Sarah Tschohl
Paralegal

EXPLANATORY INFORMATION TO ACCOMPANY A FINAL ORDER

(To be used in connection with actions when a hearing was **not** held)

(Required by Rule of Procedure 740.02)

The accompanying order is a "**Final Order**" issued by the department pursuant to section 67-5246, Idaho Code.

PETITION FOR RECONSIDERATION

Any party may file a petition for reconsideration of a final order within fourteen (14) days of the service date of this order as shown on the certificate of service. **Note: The petition must be received by the Department within this fourteen (14) day period.** The department will act on a petition for reconsideration within twenty-one (21) days of its receipt, or the petition will be considered denied by operation of law. See section 67-5246(4), Idaho Code.

REQUEST FOR HEARING

Unless the right to a hearing before the director or the water resource board is otherwise provided by statute, any person who is aggrieved by the action of the director, and who has not previously been afforded an opportunity for a hearing on the matter shall be entitled to a hearing before the director to contest the action. The person shall file with the director, within fifteen (15) days after receipt of written notice of the action issued by the director, or receipt of actual notice, a written petition stating the grounds for contesting the action by the director and requesting a hearing. See section 42-1701A(3), Idaho Code. **Note: The request must be received by the Department within this fifteen (15) day period.**

APPEAL OF FINAL ORDER TO DISTRICT COURT

Pursuant to sections 67-5270 and 67-5272, Idaho Code, any party aggrieved by a final order or orders previously issued in a matter before the department may appeal the final order and all previously issued orders in the matter to district court by filing a petition in the district court of the county in which:

i. A hearing was held,
ii. The final agency action was taken,
iii. The party seeking review of the order resides, or
iv. 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 of: a) the service date of the final order, b) the service date 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 section 67-5273, Idaho Code. The filing of an appeal to district court does not in itself stay the effectiveness or enforcement of the order under appeal.