**BEFORE THE DEPARTMENT OF WATER RESOURCES**

**OF THE STATE OF IDAHO**

| IN THE MATTER OF THE DISTRIBUTION OF WATER TO VARIOUS WATER RIGHTS HELD BY AND 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<br><br>**FIFTH AMENDED FINAL ORDER REGARDING METHODOLOGY FOR DETERMINING MATERIAL INJURY TO REASONABLE IN-SEASON DEMAND AND REASONABLE CARRYOVER** |
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## BACKGROUND

On April 19, 2016, the Director ("Director") of the Idaho Department of Water Resources ("Department") issued his *Fourth Amended Final Order Regarding Methodology for Determining Material Injury to Reasonable In-Season Demand and Reasonable Carryover* ("Fourth Methodology Order"). The Fourth Methodology Order: (1) explained how the Director would determine material injury to storage and natural flow water rights of members of the Surface Water Coalition ("SWC")[1]; (2) established methods for quantifying material injury to SWC storage and natural flow water rights as predictive and actual demand shortfalls; (3) established methods for quantifying mitigation obligations by holders of junior priority ground water rights for shortfalls in predictive and actual SWC water demands; and (4) established a method for determining a priority date for curtailment if mitigation obligations are not satisfied.

The processes established in the Fourth Methodology Order for determining material injury are not carved in stone. Updates to the methodology order based on additional data and analyses were always anticipated:

> Recognizing his ongoing duty to administer the State's water resources, the Director should use available data, and consider new analytical methods or modeling concepts, to evaluate the methodology. As more data is gathered and analyzed, the Director will review and refine the process of predicting and evaluating material injury. The methodology will be adjusted if the data supports a change.

[1] The SWC is comprised of A&B District, American Falls Reservoir District #2, Burley Irrigation District, Milner Irrigation District, Minidoka Irrigation District, North Side Canal Company, and Twin Falls Canal Company. Each entity holds separate senior surface natural flow water rights and has separate storage contracts for storage water space in the reservoirs.

*Fourth Methodology Order*, Conclusion of Law 17; *see also In Matter of Distribution of Water to Various Water Rts. Held By or For Ben. of A & B Irrigation Dist.*, 155 Idaho 640, 645, 315 P.3d 828, 833 (2013) ("[t]he concept of a baseline is that it is adjustable . . . ."). The prediction and determination of rights and obligations of the holders of senior priority and junior priority water rights respectively must: (1) apply the best available science and underlying water data; (2) consider changing climatic and cropping patterns; and (3) adhere to the most recent decisions of the courts related to water administration.

Many of the data sets the Department relied upon in the Fourth Methodology Order have been expanded and now include additional years. Furthermore, the Department now has multiple years of experience with the methodology to better understand the impact of applying steady-state modeling versus transient modeling to determine a curtailment priority date that would supply adequate water to the senior water right holders. The first version of the ESPA groundwater flow model was not calibrated at a time-scale that supported in-season transient modeling. In contrast, the current version was calibrated using monthly stress periods and half-month time steps, a refinement that facilitates in-season transient modeling for calculating the response to curtailment of groundwater use. The purpose of this *Fifth Amended Final Order Regarding Methodology for Determining Material Injury to Reasonable In-Season Demand and Reasonable Carryover* ("Fifth Methodology Order") is to update the Director's methodology for determining material injury to storage and natural flow water rights either held by or committed to members of the SWC consistent with the Director's ongoing obligation to use the best available science and information.

## FINDINGS OF FACT

### I. Overview of the Methodology for Determining Material Injury to Water Rights by Determining Reasonable In-Season Demand and Reasonable Carryover

1. The methodology for determining material injury to water rights by determining reasonable in-season demand ("RISD") and reasonable carryover should be based on updated data, the best available science, analytical methods, and the Director's professional judgment as manager of the state's water resources. In the future, climate may vary and conditions may change; therefore, the methodology may need to be adjusted to consider a different baseline year or years ("BLY") or changes to other components.

2. In-season demand shortfall ("IDS") will be computed by subtracting RISD from the forecast supply ("FS"). In-season demand shortfall is computed using the following equation:

$$IDS = FS - RISD$$

3. If the FS is greater than the RISD, there is no demand shortfall. If the FS is less that the RISD, the negative difference is the demand shortfall. Initially, RISD is equal to the historic demands associated with a BLY as selected by the Director, but will be corrected during the season to account for variations in climate and water supply between the BLY and actual conditions.

4. Reasonable carryover shortfall will be computed by subtracting reasonable carryover from actual carryover, where reasonable carryover is defined as the difference between a baseline year demand ("BD") and projected typical dry year supply. Reasonable carryover shortfall will be computed using the following equation:

Reasonable Carryover Shortfall = Actual Carryover – Reasonable Carryover

5. If actual carryover exceeds the reasonable carryover, there is no reasonable carryover shortfall. In contrast, if reasonable carryover exceeds the actual carryover, the negative difference is the reasonable carryover shortfall.

6. The concepts underlying the selection of the BLY, determination of in-season demand shortfall, and reasonable carryover shortfall will be discussed in detail below.

## II. In-Season Demand Shortfall

### A. Considerations for the Selection of a Baseline Year

7. A BLY is a year or average of years when irrigation demand represents conditions that can predict need in the current year of irrigation at the start of the irrigation season. The purpose of predicting need is to estimate material injury.

8. A BLY is selected by analyzing three factors: (1) climate; (2) available water supply; and (3) irrigation practices. R. Vol. 37 at 7098.[2] To capture current irrigation practices, identification of a BLY is limited to years subsequent to 1999. *Id*. at 7096.

9. The historic diversion volumes from the BLY and the predicted supply forecast at the start of the irrigation season are inputs to predict the initial ISD, where a demand shortfall is the difference between the BD and the FS. When the difference is a negative number, the ISD is zero. ISD increases with increases in BD, decreases in FS, or both. Assuming constant irrigation practices, crop distributions, and total irrigated acres, demand for irrigation water typically increases in years of higher temperature, higher reference evapotranspiration ("ET"), and lower precipitation. If water demand data is averaged for several years and these averages are the basis to predict demand shortfall at the start of the season, in a high-water demand year, these averages may often under-predict the demand shortfall. In a high-water demand year, under-prediction of IDS might be acceptable if the junior priority ground water right holders and the senior priority surface water right holders shared equally in the risk of water shortages. Equality in sharing the risk will not adequately protect the senior priority surface water right holder from injury. Actual demand shortfalls to a senior surface water right holder resulting from predictions at the start of the irrigation season based on average data unreasonably shifts the risk of shortage to the senior surface water right holder. Therefore, a BLY should represent a

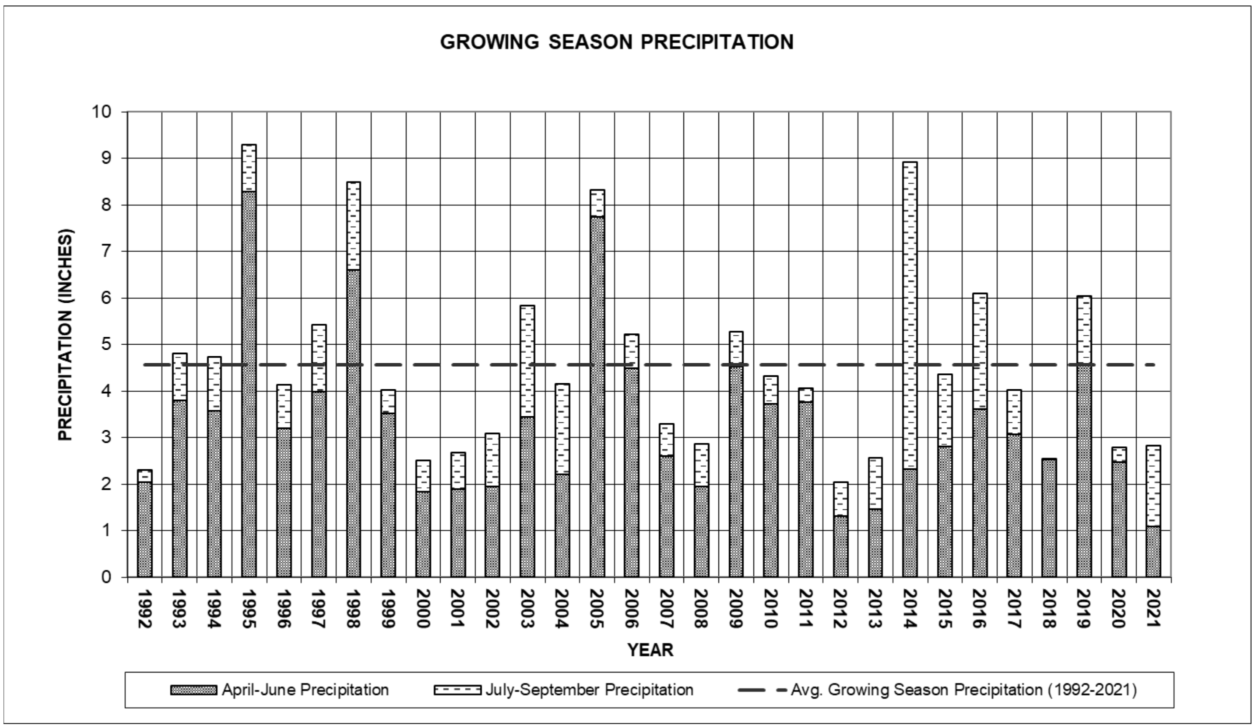
[2] All citations in this Order are to material that was admitted during the original hearing and is part of the final agency record on appeal in Gooding County Case No. CV-2008-551, which was lodged with the Fifth Judicial District Court on February 6, 2009.

year(s) of above average diversions and should not represent a year(s) of average or below average diversions. An above average diversion year(s) selected as the BLY should also represent a year(s) of above average temperatures and reference ET, and below average precipitation to ensure that increased diversions were a function of crop water need and not other factors. In addition, actual supply should be analyzed to assure that the BLY is not a year of limited supply.

### i. Climate

10. For the methods outlined herein, climate is represented by precipitation, reference ET, and growing degree days.

11. <u>Precipitation.</u> Water, in all phases, introduced to Idaho from the atmosphere is termed precipitation. During the growing season, precipitation reduces the irrigation water needed for growing crops. Ex. 3024 at 19. The figure below shows the precipitation recorded during the growing season at the National Weather Service's Twin Falls weather station.




Growing Season Precipitation at National Weather Service's Twin Falls Weather Station 1992–2021.[3]

[3] The Fourth Methodology Order included data for the period 1990 through 2014. This Fifth Methodology Order updates this chart with data for the period 1992 to 2021. The chart is created from NOAA National Weather Service total precipitation data obtained from the NCDC's Climatological Data Annual Summary Idaho report series for the Twin Falls 6 E and Twin Falls Sun Valley Regional Airport weather stations.

12. Evapotranspiration. ET is a variable representing both the amount of water that transpires from vegetation and the amount of water that evaporates from the underlying soil. ET is an important factor for properly estimating RISD. In its water budget calculations, the SWC proposed the use of ET values from the USBR as part of their Pacific Northwest Cooperative Agricultural Network, i.e. AgriMet. Ex. 8000, Vol. II, Chap. 9; Ex. 8000, Vol. IV, Appdx. AU. The ground water users proposed the use of ET values from Richard G. Allen and Clarence W. Robison 2007, Evapotranspiration and Consumptive Irrigation Water Requirements for Idaho, i.e. ETIdaho. Ex. 3007A at 21; Ex. 3024 at 1-58.

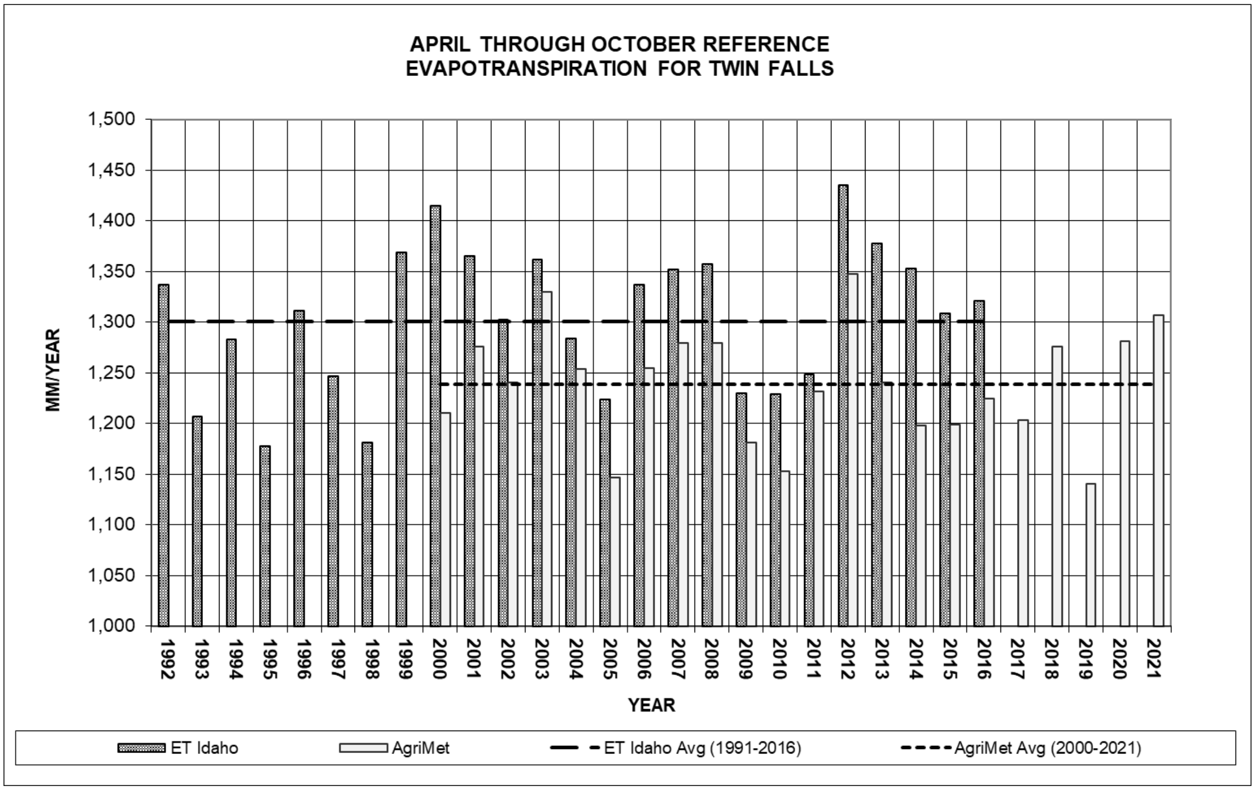
13. Reference ET is a standardized index that approximates the climatic demand for water vapor (i.e. ET). Both ETIdaho and AgriMet calculate and publish reference ET data. The Department will identify potential BLYs by consulting both ETIdaho reference ET and AgriMet reference ET.

14. Neither ETIdaho reference ET data nor AgriMet reference ET data span the entire period of analysis (1992-2021). ETIdaho reference ET data are currently available from 1990 through 2016.[4] AgriMet reference ET data are available from 2000 to 2021.[5] Ideal BLY candidates are years in which reference ET exceeds average reference ET values. The individual year is compared using both AgriMet and ETIdaho reference ET data for those years in which both data are available and only AgriMet data in those years where there is no ETIdaho data.

[4] The Fourth Methodology Order included ETIdaho reference ET data for the period 1991 to 2011. ETIdaho reference ET data is now available through 2016. This Fifth Methodology Order updates this chart with data for the period 1992 to 2016.

[5] The Fourth Methodology Order included AgriMet reference ET data for the period 2000 to 2014. . AgriMet reference ET data is now available through 2021. This Fifth Methodology Order updates this chart with data for the period 2000 to 2021.

15. Years of above average values of reference ET are appropriate BLY candidates.[6] Total April through October reference ET for the period of record from the Twin Falls (Kimberly) AgriMet site is shown below.

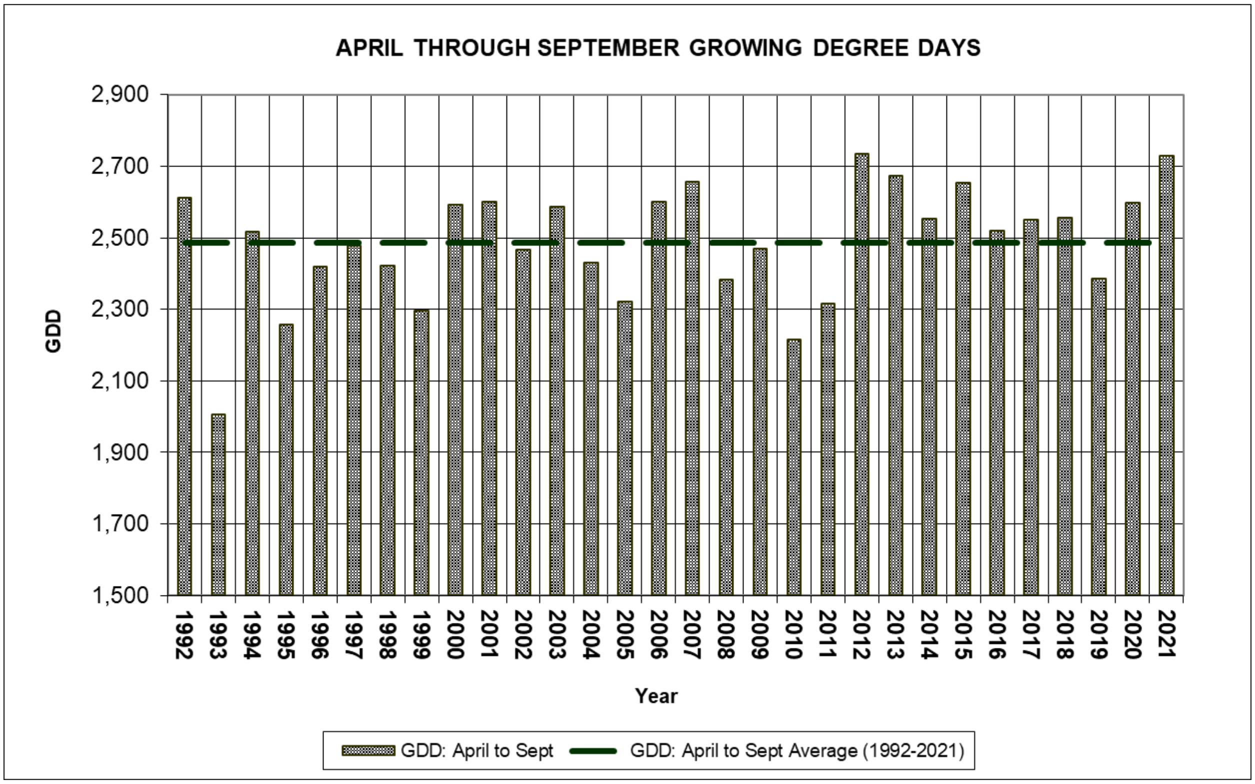



Reference ET for Twin Falls (Kimberly) with both AgriMet and ETIdaho data 1992-2021.[7]

[6] Values for reference ET between ETIdaho and AgriMet do not match because they are derived differently. The relevant information for identifying a potential BLY is the relationship between the year under consideration and the average for the data sets.

[7] The Fourth Methodology Order included data only through 2014. This Fifth Methodology Order updates this chart with combined data for the period 1992 to 2021, establishing a 30-year record which is the professional standard of practice for calculating climatic and hydrologic normals.

16. Growing Degree Days. Growing degree days define the length and type of growing season. Growing degree days are an arithmetic accumulation of daily mean temperature above a certain base temperature. Ex. 3024 at 10; 117-21. These growth units are a simple method of relating plant growth and development to air temperatures. Different plant species have different base temperatures below which they do not grow. At temperatures above this base, the amount of plant growth is approximately proportional to the amount of heat or temperature accumulated. A higher annual growing degree day value correlates to a higher potential rate of plant growth. The table below shows growing degree days accumulated for April through September for the Twin Falls (Kimberly) AgriMet site.

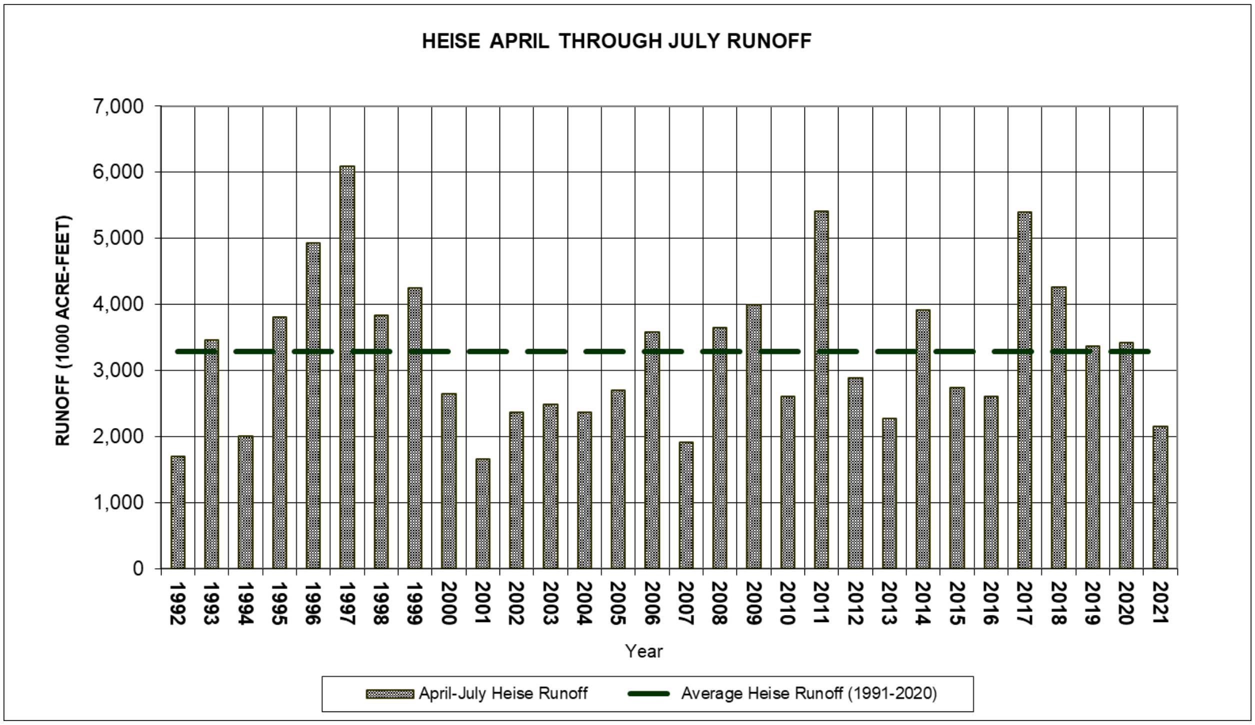



Growing Degree Days ("GDD") for Twin Falls (Kimberly) AgriMet Site 1992-2021.[8]

[8] The Fourth Methodology Order included data only through 2014. This Fifth Methodology Order updates this chart with data for the period 1992 to 2021.

### ii. Available Water Supply

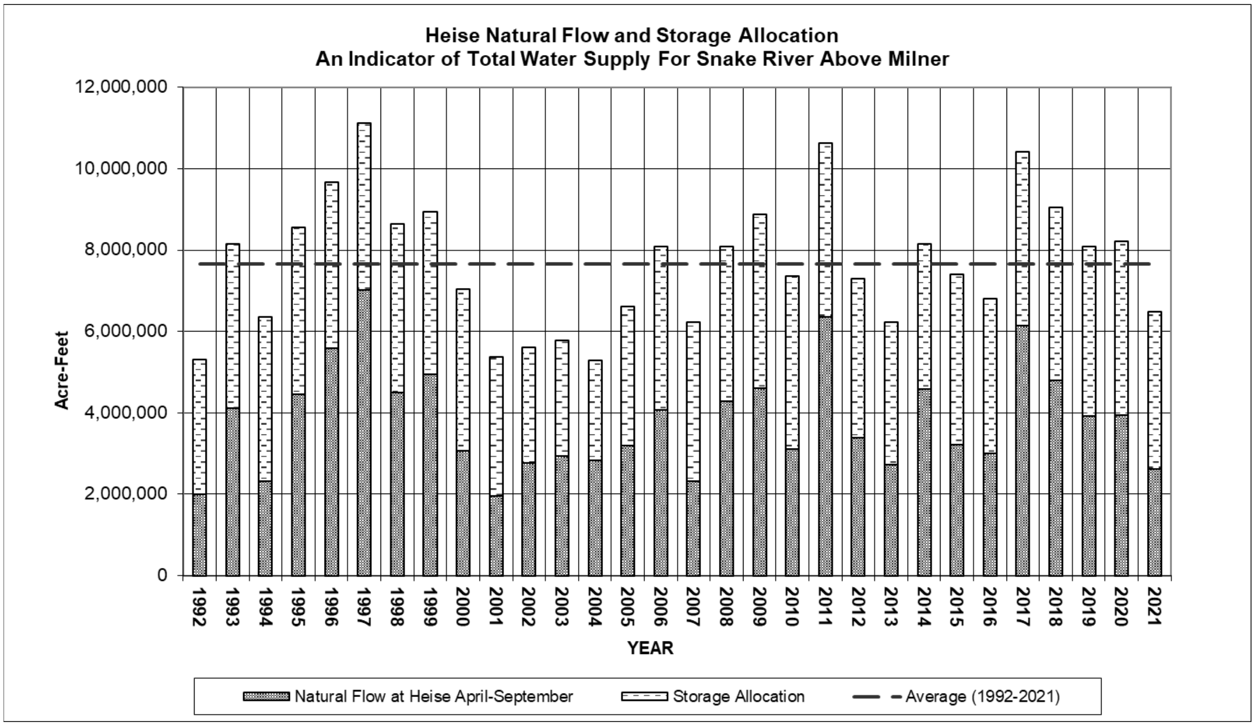
17. The April through July Heise runoff volume represents the volume of water available for diversion into storage reservoirs and is an indicator of natural flow supplies. The graph below shows actual unregulated flow volumes at Heise for 1992 through 2021. The 1992 to 2021 average (3,284,000 acre-feet) is displayed by the dashed line.




April through July Unregulated Flow Volume at Heise, 1992-2021.[9]

[9] The Fourth Methodology Order included data only through 2014. This Fifth Methodology Order updates this chart with data for the period 1992 to 2021.

18. The sum of the Heise natural flow and the reservoir storage allocations is an indicator of the total supply of the Snake River. The sum of the Heise natural flow and reservoir storage allocations for each year from 1992-2021 is represented in the graph below.




The sum of the Heise natural flow and the storage allocation for the Snake River above Milner 1992-2021.[10]

### iii. Irrigation Practices

19. A baseline year ("BLY") must be recent enough to represent current irrigation practices. R. Vol. 37 at 7099-7100. Current conditions should be represented by: (a) the net area of the irrigated crops, (b) farm application methods (flood/furrow or sprinkler irrigation), and (c) the conveyance system from the river to the farm. The type of sprinkler systems should be similar between the BLY and the current year.

20. Sprinkler systems are currently the predominant application system. *Id*. at 7101-02. To ensure that current irrigation practices are captured, selection of a BLY for the SWC should be limited to years subsequent to 1999. *Id*. at 7096; 7099-7100.

[10] The Fourth Methodology Order included data for the period 1990 to 2014. This Fifth Methodology Order updates this chart with data for the period 1992 to 2021.

21. Estimates of irrigated acres from the hearing show a trend of decreasing irrigated acreage. R. Vol. 28, 5205-15; R. Vol. 37 at 7100. According to the Hearing Officer, beneficial use cannot occur on acres that have been hardened or are otherwise not irrigated. R. Vol. 37 at 7100.

22. The following table summarizes: a) SWC entities; b) shapefile source of reported irrigated acres; c) year shapefile created; d) decreed irrigated acres; (e) number of reported acres in shapefile; and f) irrigated acres used in this methodology order for the 2023 irrigation season. The number of irrigated acres used in this methodology order is the number of reported acres unless that number is larger than the decreed irrigated acres, and if so, then the decreed acres were used. This table will be updated annually based on the reported number of irrigated acres by each SWC entity in Step 1 of the Methodology Order.

| Entity | Shapefile Source | Shapefile Year | Partial Decree Acres | Shapefile Acres | Acres Used in Methodology |
|---|---|---|---|---|---|
| A&B | PPU[1] | 2010 | 15,924 | 21,972 | 15,924 |
| AFRD2 | PPU | 2010 | 62,361 | 69,077 | 62,361 |
| BID | SWC | 2013 | 47,643 | 46,035 | 46,035 |
| Milner | PPU | 2010 | 13,335 | 13,264 | 13,264 |
| Minidoka | SWC | 2023 | 75,093 | 77,176 | 75,093 |
| NSCC | PPU | 2010 | 154,067 | 224,463 | 154,067 |
| TFCC | SWC | 2013 | 196,162 | 194,732 | 194,732 |

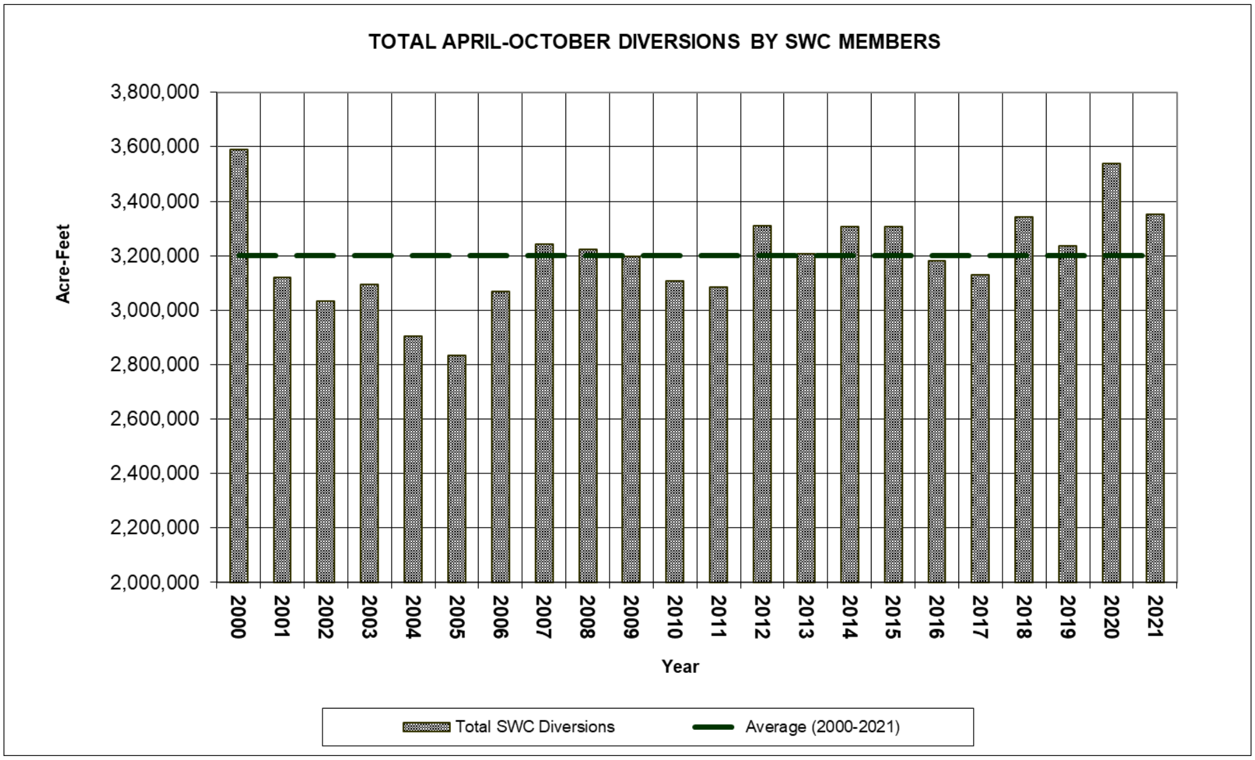
[1] IDWR permissible place of use.

Acres used in the methodology.

23. There are lands within the service areas of SWC entities that are irrigated with supplemental groundwater. Exhibit 3007. Supplemental groundwater is a factor the Director can consider in the context of a delivery call. *Memorandum Decision and Order on Petitions for Judicial Review* ("Methodology Remand Order") in Gooding County Consolidated Case No. CV-2010-382, at 18-19. At this time, the information submitted or available to the Department is insufficient to determine the extent of supplemental irrigation on lands within the service areas of SWC entities.

### iv. Diversions

24. The following figure summarizes the annual measured diversions by the combined SWC members from 2000-2021. Diversions for a baseline year should exceed the average diversions.




Total April-October Diversions by SWC Members.[11]

## B. Selection of the Initial Baseline Year

25. When selecting the BLY the Director must evaluate recent data to determine whether the BLY section criteria are satisfied.

26. In the Fourth Methodology Order, the Department considered the years 2000-2014 when deciding the BLY. Ultimately, the Department chose an average of the years 2006, 2008, and 2012 for the BLY ("BLY 06/08/12"). For this Fifth Methodology Order, the years 2000-2021 were considered for the BLY selection. With the addition of new data from 2014 to 2021, the total diversions by the SWC for the previous BLY 06/08/12 are 100% of the average SWC diversions for the years 2000-2021. As a result of adding the new data, BLY 06/08/12 no longer satisfies the presumption criteria that total diversions in the BLY should exceed the average annual diversions. Mem. Decision & Order on Pets. for Jud. Rev., at 34, *IGWA v. Idaho Dep't of Water Res.*, No. CV-2010-382 (Gooding Cnty. Dist. Ct. Idaho Sept. 26, 2014).

[11] The Fourth Methodology Order did not include this chart. It was added to demonstrate that the baseline year is a year of above average total diversions.

27. Years 2018 and 2020 satisfy all the BLY selection criteria discussed above. Each of these years had (1) total diversions above the average diversions for the years 2000-2021, (2) total growing degree days above the average for the years 1992-2021, and (3) reference ET values above the average for the years 1992-2021. The years 2018 and 2020 also had total precipitation values below the average precipitation for the years 1992-2021 and were not water supply limited years. The Department has reviewed the SWC's diversion data for the 2020 irrigation season. The Department finds that 2020 ranks as the second-highest year of total diversions for the SWC and is more than one standard deviation above the average for the years 2000-2021. In comparison, 2018 ranks as the fourth-highest year of total diversions for the SWC and is less than one standard deviation above the average for the years 2000-2021. Choosing a BLY with above average diversions but within one standard deviation, ensures that a conservative year is selected that protects the senior while excluding extreme years from consideration. The Director concludes that total diversions for 2018 adequately protect senior water rights when predicting the demand shortfall at the start of the irrigation season and selects 2018 as the BLY.

| Entity | 2000-2021 Avg. Total Diversions (Acre-Feet) | 06/08/12 Avg. Total Diversions (Acre-Feet) | 06/08/12 % of Avg. | 2018 Total Diversions (Acre-Feet) | 2018 % of Avg. |
|---|---|---|---|---|---|
| A&B | 59,474 | 59,993 | 101% | 64,192 | 108% |
| AFRD2 | 427,978 | 427,672 | 100% | 453,890 | 106% |
| BID | 247,049 | 251,531 | 102% | 262,211 | 106% |
| Milner | 53,343 | 47,135 | 88% | 58,417 | 110% |
| Minidoka | 354,181 | 369,492 | 104% | 354,851 | 100% |
| NSCC | 996,267 | 978,888 | 98% | 1,026,661 | 103% |
| TFCC | 1,062,098 | 1,060,011 | 100% | 1,121,717 | 106% |
| Total | 3,200,389 | 3,194,722 | 100% | 3,341,939 | 104% |

Average SWC Diversions (acre-feet) for 2000-2021, 2006/2008/2012 BLY, and 2018 BLY.

### C. Calculation of Reasonable In-Season Demand

28. Reasonable in-season demand (RISD) is the projected annual diversion volume for each SWC entity during the year of evaluation that is attributable to the beneficial use of growing crops within the service area of the entity. Given that climate and system operations for the year being evaluated will likely be different from the BLY, the BLY must be adjusted for those differences. As stated by the Hearing Officer, "The concept of a baseline is that it is adjustable as weather conditions or practices change, and that those adjustments will occur in an orderly, understood protocol." R. Vol. 37 at 7098.

#### i. Project Efficiency

29. Project efficiency ("$E_p$") is the ratio of total volumetric crop water needs within a SWC entity's boundary and the total volume of water diverted by that entity to satisfy its crop needs. It is the same concept as system efficiency, which was presented at hearing. Ex. 3007 at

28-29. Implicit in this relationship are the components of seepage loss (conveyance loss), on-farm application losses (deep percolation, field runoff), and system operational losses (return flows) for which data is not obtainable by the Department. By utilizing project efficiency and its input parameters of crop water need and total diversions, the influence of the unknown components for which data is not obtainable can be captured and described without quantifying each of the components. Project efficiency is derived by dividing crop water need by total diversions as depicted in the algorithm below:

$$E_p = \frac{CWN}{Q_D}$$

Where:

$E_p$ = project efficiency,
CWN = crop water need, and
$Q_D$ = irrigation entity diversion of water specifically put to beneficial use for the growing of crops within the irrigation entity.

30. Monthly SWC entity diversions ("$Q_D$") will be obtained from Water District 01's diversion records. Ex. 8000, Vol. II, at 8-4, 8-5. Raw monthly diversion values will then be adjusted to remove any water diversions that can be identified to not directly support the beneficial use of crop development within the irrigation entity. Examples of adjustments include the removal of diversions associated with in-season recharge and diversion of irrigation water on the behalf of another irrigation entity. Adjustments are unique to each SWC member and each irrigation season and will be evaluated each year. Any natural flow or storage water deliveries to entities other than the SWC for purposes unrelated to the original right will not be included as a part of the SWC water supply or carryover volume. Water that is purchased or leased by a SWC member may become part of the shortfall obligation to the extent that member has been found to have been materially injured. *See e.g.* R. Vol. 38 at 7201, n. 11 (Eighth Supplemental Order). Conversely, water supplied to private leases or to the rental pool by a SWC member will be included as a part of the SWC supply for that member because non-inclusion would unjustifiably increase the shortfall obligation.

31. Monthly project efficiencies will be computed for the entire irrigation season. Project efficiency varies from month-to-month during the season and will typically be lower during the beginning and ending of the season. Monthly project efficiencies will be divided into actual monthly crop water need ("CWN") values to determine RISD during the year of evaluation.

32. In the Fourth Methodology Order, project efficiencies for each SWC member were initially averaged over an eight-year period (2007-2014) and project efficiency greater or less than two standard deviations were excluded from the calculation. By including only those values within two standard deviations, extreme values from the data set are removed. Under the Fourth Methodology Order, an updated 8-year rolling average of project efficiencies was calculated each year the methodology was implemented. The Director now finds that averaging over a rolling period of 15 years results in project efficiency values that are more consistent from year-to-year, reducing the impact of short-term trends. The Director finds that it is still

appropriate to remove project efficiencies greater or less than two standard deviations from the average.

The following is a table of efficiency values averaged over the most recent fifteen-year period of record.

| Month | A&B | AFRD2 | BID | Milner | Minidoka | NSCC | TFCC | Monthly Avg. |
|---|---|---|---|---|---|---|---|---|
| 4 | 0.98 | 0.33 | 0.45 | 0.87 | 0.43 | 0.24 | 0.31 | 0.51 |
| 5 | 0.47 | 0.22 | 0.32 | 0.39 | 0.35 | 0.24 | 0.30 | 0.33 |
| 6 | 0.66 | 0.40 | 0.49 | 0.60 | 0.56 | 0.41 | 0.51 | 0.52 |
| 7 | 0.74 | 0.44 | 0.52 | 0.67 | 0.63 | 0.48 | 0.58 | 0.58 |
| 8 | 0.58 | 0.41 | 0.42 | 0.55 | 0.52 | 0.43 | 0.46 | 0.48 |
| 9 | 0.45 | 0.27 | 0.32 | 0.45 | 0.38 | 0.32 | 0.27 | 0.35 |
| 10 | 0.18 | 0.16 | 0.09 | 0.14 | 0.11 | 0.06 | 0.04 | 0.11 |
| Season Avg. | 0.58 | 0.32 | 0.37 | 0.52 | 0.43 | 0.31 | 0.35 | |

SWC Member Average Monthly Project Efficiencies from 2007-2021.[12]

### ii. Crop Water Need

33. CWN is the volume of irrigation water required for crop growth within a SWC entity boundary, such that crop growth is not limited by water availability. CWN only applies to crops irrigated with surface water. CWN is the difference between the fully realizable consumptive use associated with crop growth, or ET, and effective precipitation ($W_e$) and is synonymous with the terms irrigation water requirement and precipitation deficit. Ex. 3024. For the purposes of the methodology, CWN is calculated as set forth below:

$$CWN = \sum_{i=1}^{n} \left( ET_i - W_e \right) A_i$$

Where,

CWN = crop water need
$ET_i$ = consumptive use of specific crop type,
$W_e$ = effective precipitation,
$A_i$ = total irrigated area of specific crop type,
i = index variable representing the different specific crop types grown within the irrigation entity, and
n = upper bound of summation equal to the total number of different specific crop types grown within the irrigation entity.

[12] In the Fourth Methodology Order, this table summarized average $E_p$ data for the period 2007 to 2014. This Fifth Methodology Order updates this table with average $E_p$ data for the period 2007 to 2021.

### iii. Evapotranspiration

34. ET can be estimated with theoretically based equations that calculate ET for an individual crop, necessitating crop distribution maps for each year. Ex. 3007A at 21, Figure 3, Tables 6-12; Ex. 3024 at 1-58; Ex. 8000, Vol. II at Chapter 9; Ex. 8000, Vol. IV, Appdx. AU.

35. At hearing, values of ET were estimated by the SWC from AgriMet, Ex. 8000, Vol. IV, Appdx. AU-1, and by the ground water users from ETIdaho, Ex. 3007A at 21; Ex. 3024 at 1-58. At this time, the Director finds that the use of AgriMet is more appropriate for determining ET than ETIdaho because AgriMet is available to all parties in real-time without the need for advanced programming. Accordingly, the methodology will rely on AgriMet derived ET values in the calculations of project efficiency, CWN, and RISD. In the future, with the development of additional enhancements, ETIdaho may become a more appropriate analytical tool for determining ET.[13]

36. CWN is derived by multiplying crop specific ET values, adjusted for estimated effective precipitation, by the total irrigated area of individual crop types, and summing for all crop types. The areas for individual crop types will be derived from published crop distributions from the United States Department of Agriculture's National Agricultural Statistics Service ("NASS"). Ex. 1005 at 1. NASS annually creates a crop-specific land cover digital dataset from satellite imagery and field checks. The dataset is called the Cropland Data Layer ("CDL"). Each year, the Department will calculate acreage by crop type for each SWC entity using NASS CDL data. In the future, the NASS data may not be the most accurate source of data. The Department prefers to rely on data from the current season if and when it becomes usable.

37. AgriMet ET and precipitation data are gathered at the Rupert and Twin Falls (Kimberly) stations. Both stations are in the vicinity of the SWC entities. A&B Irrigation District ("A&B"), Burley Irrigation District ("BID"), and Minidoka Irrigation District ("Minidoka") are nearest to the Rupert AgriMet station. ET data gathered at the Rupert station reasonably represents the climate conditions for A&B, BID, and Minidoka. American Falls Reservoir District No. 2 ("AFRD2"), Milner Irrigation District ("Milner"), North Side Canal Company ("NSCC"), and Twin Falls Canal Company ("TFCC") are nearest to the Twin Falls (Kimberly) AgriMet station. ET data gathered at the Twin Falls (Kimberly) station reasonably represents the climate conditions for AFRD2, Milner, NSCC, and TFCC. Ex. 8000, Vol. IV at AU-2, AU-8.

### iv. Effective Precipitation

38. Effective precipitation ("$W_e$") is the amount of total precipitation held in the soil horizon available for crop root uptake. Effective precipitation will be estimated from total precipitation (W) employing the methodology presented in the USDA Technical Bulletin 1275. Ex. 8000, Vol. IV, Appdx. AU3, AU8. Total precipitation (W) data is published by the USBR as

[13] IDWR held a series of meetings in the winter of 2022-23 with the parties' technical consultants to discuss potential updates to the methodology order. During the meetings, IDWR discussed alternative methods of determining ET values, such as METRIC. However, the Director finds that the methods considered are not yet ready for incorporation into the administration of the SWC Delivery Call and will continue to rely on AgriMet ET data.

part of its Pacific Northwest Cooperative Agricultural Network, i.e. AgriMet.[14] Ex. 8000, Vol. IV, Appdx. AU3. $W_e$ values derived from AgriMet based precipitation values are independent of crop type.

39. AgriMet precipitation (W) values are easy to understand and regularly used by the farming, water supply, and water management communities. Accordingly, the methodology will rely on AgriMet derived W values in the calculations of CWN and RISD.

40. As with ET data, AgriMet precipitation data are available from the Rupert and Twin Falls (Kimberly) stations. AgriMet data from the Rupert station reasonably represents climate conditions for A&B, BID, and Minidoka. AgriMet data from Twin Falls (Kimberly) reasonably represents climate conditions for AFRD2, Milner, NSCC, and TFCC. Ex. 8000, Vol. IV at AU-2, AU-8.

**v. Summary of Reasonable In-Season Demand Calculation**

41. At the start of the irrigation season, RISD is equal to the BD, or total season adjusted diversions for the BLY. When calculated in-season, RISD is calculated below.

$$RISD_{milestonex\_x} = \sum_{j=1}^{m}\left(\frac{CWN_j}{E_{p,j}}\right) + \sum_{j=m+1}^{7} BD_j$$

Where:

$RISD_{milestone\_x}$ = reasonable in season demand at specified evaluation milestones during the irrigation season,
CWN = crop water need for month j,
$E_p$ = baseline project efficiency for month j,
BD = baseline demand for month j,
j = index variable, and
m = upper bound of summation, equal to the month calculation occurs, where April = 1, May =2, … October = 7.

42. <u>April RISD Adjustment</u>: In April, the calculated RISD, which is the quotient of CWN and Ep, can underestimate actual canal operation diversions. Under-estimation occurs when the actual CWN value for April is much smaller than the diversion of water into the canal system necessary to effectively operate the irrigation delivery system. Often, CWN in April is small due to precipitation, cool temperatures, and/or the immaturity of the crop. The diversion rate at the head gate necessary to push water into all laterals and field head gates throughout the delivery system often dwarfs the water necessary to strictly satisfy CWN. In addition, it is difficult for canal systems to be dynamically operated to match the frequent precipitation events in April, which also contributes to a diversion of water at the canal head gate that exceeds the diversion of water necessary to strictly satisfy CWN. To account for the conditions affecting the

[14] IDWR held a series of meetings in the winter of 2022-23 with the parties' technical consultants to discuss potential updates to the methodology order. During the meeting, IDWR discussed alternative methods to determine W values, such as PRISM. However, the Director finds that the methods considered are not yet ready for incorporation into the administration of the SWC Delivery Call and will continue to rely on AgriMet precipitation data.

usability of the calculated RISD value for April, the values may be adjusted for each individual irrigation delivery entity in the SWC as described below.

43. When the calculation of CWN/Ep results in a value for the month of April less than the average April diversion volume over a record of representative years in the recent past, the April RISD is set equal to the average April diversion volume. When the calculation of CWN/Ep results in a value greater than the average April diversion volume, the April RISD is equal to the calculated CWN/Ep volume.

44. October RISD Adjustment: In October, the calculated RISD, which is equal to the CWN divided by Ep, can both under-estimate and over-estimate actual canal operation diversions. The RISD may be underestimated when the actual CWN value for October is much smaller than the diversion of water into the canal system necessary to effectively operate the irrigation delivery system. The diversion rate at the head gate necessary to push water into all laterals and field head gates throughout the delivery system often dwarfs the water necessary to strictly satisfy CWN. In addition, it is difficult for canal systems to be dynamically operated to match the frequent precipitation events in October, which also contributes to a diversion of water at the canal head gate that exceeds the diversion of water necessary to strictly satisfy CWN. Furthermore, RISD may be underestimated in October when a farmer diverts water at the field head gate for farming practices other than strictly satisfying CWN. Examples of water diversion practices at the field head gate that sometimes occur in October include diverting water for soil salt leaching, diverting water to build up the soil moisture profile for the following irrigation season, and/or diverting water to wet-up bare soil to prevent wind-driven topsoil erosion.

45. Unlike the month of April, RISD can be over-estimated in October. RISD may be over-estimated in years when actual CWN in October is much greater than typical CWN over a record of representative years in the recent past due to low precipitation and/or warm temperatures. To account for the conditions affecting the usability of the RISD value calculated for October, the values may be adjusted for each individual irrigation delivery entity in the SWC as described below.

46. When the calculation of CWN/Ep results in a value for the month of October greater than the maximum October diversion volume from a record of recent representative years, or less than the minimum October diversion volume from the same record of recent representative years, the October RISD is set equal to the average October diversion volume over the same period of recent representative years. When the calculation of CWN/Ep results in a value between the maximum and minimum October diversion volumes from a record of recent representative years, the October RISD is equal to the calculated CWN/Ep volume.

## D. Adjustment of Forecast Supply

47. As stated by the Hearing Officer, "There must be adjustments as conditions develop if any baseline supply concept is to be used." R. Vol. 37 at 7093. A prediction of the upcoming season's supply and demand is calculated at the beginning of the irrigation season and

adjusted at specified milestones during the irrigation season to address changes in water supply and demand conditions in response to actual climatic and water supply conditions.

**i. April Forecast Supply**

48. The FS is comprised of natural flow and stored water.

49. Typically, within the first week of April, the USBR and the USACE issue their Joint Forecast that predicts an unregulated inflow volume at the Heise Gage from April 1 to July 31 for the forthcoming year. The joint forecast ("Joint Forecast") issued by the United States Bureau of Reclamation ("USBR") and the United States Army Corp of Engineers ("USACE") for the period April 1 through July 31 "is generally as accurate a forecast as is possible using current data gathering and forecasting techniques." R. Vol. 8 at 1379, ¶ 98. Given current forecasting techniques, the earliest the Director can predict material injury "with reasonable certainty" is soon after the Joint Forecast is issued. R. Vol. 2 at 226. With data from 1990 through the irrigation year previous to the current year, a regression equation will be developed for each SWC member.[15] The regression equations for A&B and Milner will be developed by comparing the actual Heise natural flow to the natural flow diverted. *See e.g.* R. Vol. 8 at 1416-22. For AFRD2, BID, Minidoka, NSCC, and TFCC, multi-linear regression equations will be developed by comparing the actual Snake River near Heise natural flow and the flows at Box Canyon to the natural flow diverted. The regression equations will be used to predict the natural flow diverted for the upcoming irrigation season. *Id*. at 1380. The actual natural flow volume predicted in the Director's April FS for each SWC entity will be one standard error below the regression line, which underestimates the available supply. *Id*.; Tr. p. 65, lns. 6-25; p. 66, lns. 1-2. The purpose of the shift to one standard error below the regression line is to ensure senior water right holders do not bear the risk of under-prediction of supply. The forecasting techniques will be revised based on updated data and the forecasting techniques may be revised when improvements to the forecasting tools occur.

50. The storage allocation for each member of the SWC will be estimated by the Department following issuance of the Joint Forecast. The Department will forecast reservoir fill and storage allocation consistent with the methods established in the *Fifth Supplemental Order Amending Replacement Water Requirements Final 2006 & Estimated 2007.* R. Vol. 23 at 4294-97 as explained below. The Department will evaluate the current reservoir conditions and the current water supply outlook to determine a historical analogous year or years to predict reservoir fill. The Department may identify and use a combination of different analogous years to predict individual reservoir fill. Input variables for determining the individual storage water allocation for each SWC member are: (a) the analogous year's or years' total reservoir fill volume; (b) an estimated evaporation volume; and (c) the previous year's carryover volume. The FS (the combination of the forecast of natural flow supply and the storage allocation) for each SWC member will be determined by the Director shortly after the date of the Joint Forecast.

[15] IDWR held a series of meetings in the winter of 2022-23 with the parties' technical consultants to discuss potential updates to the methodology order. During the meetings, IDWR discussed updating the regression models used to forecast the SWC's water supplies in April. However, the Director finds that the current models still adequately forecast water supplies in April and will continue to rely on the existing regression models.

51. Any time prior to the Director's final determination of the April FS, if the Director can determine with certainty that any member of the SWC has diverted more natural flow than predicted, or has accrued more storage than predicted, the Director will revise his initial, projected shortfall determination.

### ii. July Forecast Supply

52. Approximately halfway through the irrigation season, the FS will be adjusted. When adjusting the natural flow component of the FS, the Department's water rights accounting program will compute the year-to-date natural flow diverted by each member of the SWC. The natural flow diversion for the remainder of the irrigation season will be estimated based on the regression analyses.

53. The natural flow supplies for each SWC member are comprised of natural flow in the Snake River passing the near Blackfoot gage and gains that occur in the Snake River between the Blackfoot to Milner reach. Many different predictor variables were considered when developing the models used to predict the natural flow supplies for the remainder of the season, including those variables used in the April FS.[16] A step-wise statistical analysis was employed to help select the variables for each model. The following variables were selected to forecast water supplies halfway through the irrigation season: natural flow in the Snake River near Heise as reported by the U.S. Bureau of Reclamation; snow water equivalent (SWE) data at the Two Ocean Plateau SNOTEL site; Spring Creek discharge; and groundwater levels near American Falls Reservoir. The model predictors were optimized for each SWC member and are summarized in the sections below.

54. Linear regression equations for AFRD2, A&B, and Milner, will be developed by comparing the July 1 snow water equivalent (inches) at the Two Ocean Plateau SNOTEL site to the natural flow diversions. The regression equations for AFRD2, A&B, and Milner will be applied only in those years when the snow water equivalent at the Two Ocean Plateau SNOTEL site is greater than zero (0). Years when the snow water equivalent equals zero, the total natural flow prediction for the period July 1 to October 31 will be zero (0) AF.

55. Multiple linear regression equations for BID, Minidoka, and NSCC will be developed to predict natural flow diversions employing the following predictor variables: (1) Snake River near Heise natural flow (April – June), (2) March depth to water at well 05S 31E 27ABA1 and (3) the snow water equivalent at the Two Ocean Plateau SNOTEL site on June 15.

56. The multiple linear regression model for TFCC will be based on the following predictor variables: (1) Snake River near Heise natural flow (April – June), (2) Spring Creek total discharge (January – May) and (3) the snow water equivalent at the Two Ocean Plateau SNOTEL site on June 15.

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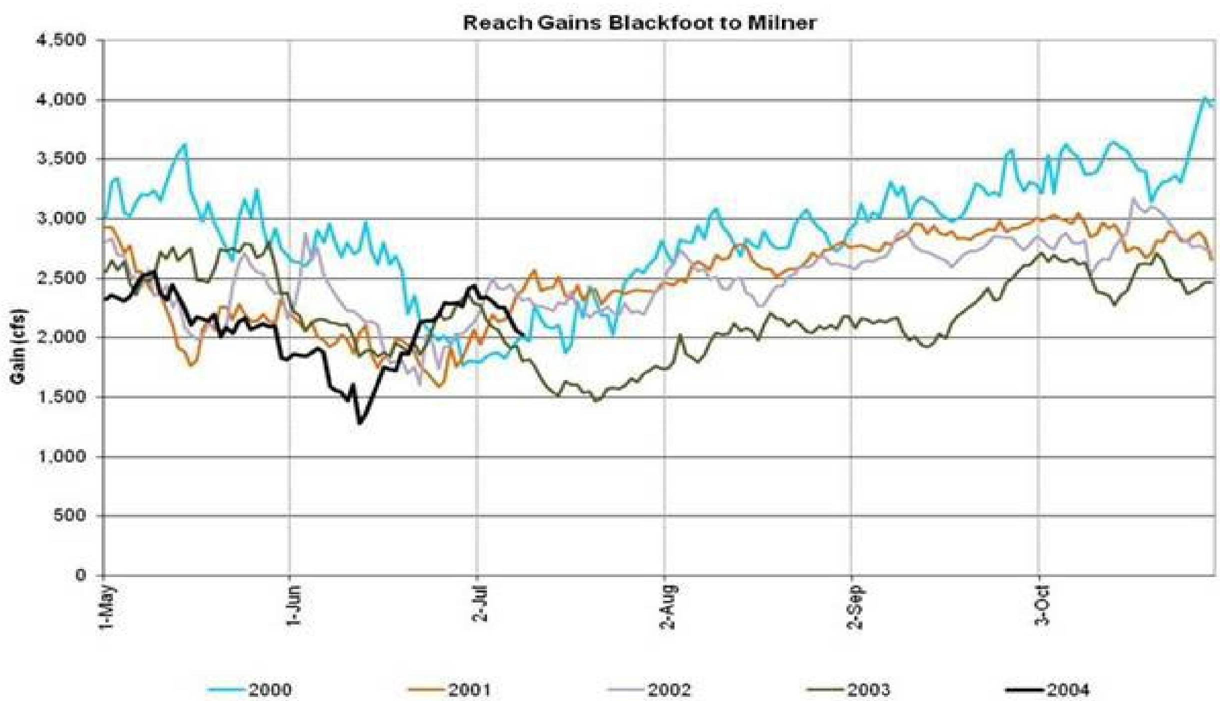
[16] IDWR held a series of meetings in the winter of 2022-23 with the parties' technical consultants to discuss potential updates to the methodology order. IDWR discussed updating the regression models used to forecast the SWC's water supplies in July. However, the Director finds that the current models still adequately forecast water supplies in July and will continue to rely on the existing regression models.

57. When adjusting the storage component of the FS, the Department must consider whether stored water has been allocated. In normal to dry years, the reservoirs will typically have filled to their peak capacity for the season and the storage water will have been allocated. If the BOR and Water District 01 have allocated stored water to spaceholders, the Department will use the actual preliminary storage allocations to the SWC. If the BOR and Water District 01 have not yet allocated stored water to spaceholders, the Department will predict the storage allocations based on the storage allocations from an analogous year or years.

**iii. Time of Need**

58. The FS will again be adjusted shortly before the Time of Need. The Time of Need is established by predicting the day in which the remaining storage allocation will be equal to reasonable carryover. The Time of Need will not be earlier than the Day of Allocation.

59. When adjusting the natural flow component of the FS, the Department's water rights accounting program will compute the natural flow diverted by each member of the SWC as of the new forecast date. The natural flow diversion for the remainder of the irrigation season will be estimated based on a historical year with similar reach gains in the Blackfoot to Milner reach. The following is an example of estimating reach gains from an analysis of historical years. Reach gains for the years 2000 – 2003 and a portion of year 2004 are graphed below. Considering 2004 as an example of a current year and comparing 2004 to the hydrographs for 2000 – 2003, year 2003 has similar reach gains and is appropriately conservative. Therefore, the natural flow diverted in 2003 would be used to predict the natural flow diversions for the remainder of the 2004 season.




Example Reach Gain Analysis for 2004.

60. When adjusting the storage component of the FS, the Department will use the actual preliminary storage allocations to the SWC.

61. The adjusted FS is the sum of the year-to-date natural flow diversions, the predicted natural flow diversions for the remainder of the season, and the storage allocation.

### E. Calculation of In-Season Demand Shortfall

62. The equation below determines the amount of predicted demand shortfall during the irrigation season.

$$IDS = FS - RISD$$

Where:

IDS = demand shortfall for specified evaluation points throughout the season,
FS = forecasted supply adjusted for specified evaluation point during the season, and
RISD = reasonable in-season demand from above.

63. The amount calculated represents the volume that junior ground water users with approved mitigation plans for delivery of water will be required to have available for delivery to members of the SWC found to be materially injured by the Director to avoid curtailment. The amounts will be calculated in April, at the middle of the season, and at the Time of Need.

## III. Methodology for Determining Material Injury to Reasonable Carryover

64. Conjunctive Management ("CM") Rule 42.01.g states the following guidance for determining reasonable carryover: "In determining a reasonable amount of carry-over storage water, the Director shall consider average annual rate of fill of storage reservoirs and the average annual carry-over for prior comparable water conditions and the projected water supply for the system." Carryover shortfall will be determined following the completion of the irrigation season.

### A. Projected Water Supply

65. CM Rule 42.01.g states that the Director "shall consider . . . the projected water supply for the system." Because it is not possible to adequately forecast the irrigation supply or demand for the following irrigation season at the end of the current irrigation season, the Director must estimate the carryover water needed in future dry years when demand exceeds supply, creating a need for carryover storage. The Director projected the water supply using typical dry years and subtracted it from a projected future demand to determine a projected carryover need.

66. The Heise natural flow is a predictive indicator of total water supply. For the years 2002 and 2004, the Heise natural flows were well below the long term average (1992-2021), but were not the lowest years on record.[17] The average of the 2002 and 2004 supply will be the projected supply, representing a typical dry year. The 2002 and 2004 supply is computed as follows:

- 2002 supply = natural flow diverted + new storage fill
- 2004 supply = natural flow diverted + new storage fill
- Projected supply = average of 2002 supply and 2004 supply

Carryover from previous years is not included in the 2002 and 2004 new storage fill because it was not new water supplied during the 2002 or 2004 irrigation year.

| | 2002 Natural Flow Diverted | 2002 New Storage Fill | 2002 Total Supply | 2004 Natural Flow Diverted | 2004 New Storage Fill | 2004 Total Supply | Projected Supply (Average 02/04) |
|---|---|---|---|---|---|---|---|
| | ---------------------------------------Acre-Feet------------------------------------------ | | | | | | |
| A&B | 853 | 45,603 | 46,456 | 1 | 36,535 | 36,536 | 41,496 |
| AFRD2 | 25,749 | 381,451 | 407,200 | 4,562 | 309,698 | 314,260 | 360,730 |
| BID | 89,886 | 174,454 | 264,340 | 102,706 | 152,387 | 255,093 | 259,716 |
| Milner | 5,058 | 43,430 | 48,488 | 1,027 | 35,175 | 36,202 | 42,345 |
| Minidoka | 143,937 | 256,602 | 400,539 | 141,460 | 229,574 | 371,034 | 385,787 |
| NSCC | 363,960 | 667,799 | 1,031,759 | 315,942 | 479,068 | 795,010 | 913,385 |
| TFCC | 851,970 | 186,233 | 1,038,203 | 881,345 | 150,218 | 1,031,563 | 1,034,883 |

SWC water supplies 2002, 2004, and 2002/2004 average (acre-feet).

67. Similar to projecting supply, the Director must also project demand. Because it is not possible to adequately forecast the irrigation demand for the following irrigation season at the end of the current irrigation season, the Director must project demand. R. Vol. 37 at 7109. The 2018 BLY will be the projected demand.

[17] The Fourth Methodology Order included data for the period 1991 to 2014. This Fifth Methodology Order updates this chart with data for the period 1992 to 2021.

68. The maximum projected carryover need is defined as the difference between a BLY demand and projected typical dry year supply. The following equation computes the maximum projected carryover need:

Maximum Projected Carryover Need = Projected Demand (2018 BLY) – Projected Supply (Average 02/04)

| | Projected Demand (2018 BLY) | Projected Supply (average 02/04) | Maximum Projected Carryover Need |
|---|---|---|---|
| | ------------------------------ | Acre-Feet | ------------------------------ |
| A&B | 64,192 | 41,496 | 22,696 |
| AFRD2 | 453,890 | 360,730 | 93,160 |
| BID | 262,211 | 259,716 | 2,495 |
| Milner | 58,417 | 42,345 | 16,072 |
| Minidoka | 354,851 | 385,787 | 0 |
| NSCC | 1,026,661 | 913,385 | 113,277 |
| TFCC | 1,121,717 | 1,034,883 | 86,834 |

SWC Projected Demand, Projected Supply and Maximum Projected Carryover Need (acre-feet).[18]

## B. Average Annual Rate of Fill

69. CM Rule 42.01.g states that the Director "shall consider the average annual rate of fill of storage reservoirs . . . ." The average annual rate of fill of the storage reservoirs is the average of annual percentages of fill of each entity's reservoir space. The average annual reservoir storage fill is a benchmark that can be compared to projected carryover need. For purposes of the table below, any water contributed to the rental pool from the previous year was added to the next year's fill volume so that it does not artificially lower the percent fill. R. Vol. 37 at 7108. Water that is supplied to the rental pool lowers carryover and could impact the following year's fill. The percent fill does not include water deducted for reservoir evaporation.

[18] This Fifth Methodology Order updates this chart with the new baseline year and calculates new maximum projected carryover need values.

The annual percent fill of storage volume by SWC entity is shown below:

| Year | A&B | AFRD2 | BID | Milner | Minidoka | NSCC | TFCC |
|---|---|---|---|---|---|---|---|
| 1992 | 96% | 100% | 98% | 93% | 75% | 76% | 86% |
| 1993 | 100% | 100% | 100% | 100% | 100% | 93% | 92% |
| 1994 | 100% | 100% | 100% | 100% | 99% | 99% | 99% |
| 1995 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 1996 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 1997 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 1998 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 1999 | 100% | 100% | 100% | 96% | 98% | 98% | 99% |
| 2000 | 100% | 99% | 99% | 98% | 100% | 97% | 97% |
| 2001 | 100% | 100% | 100% | 100% | 100% | 91% | 87% |
| 2002 | 41% | 100% | 100% | 79% | 92% | 84% | 88% |
| 2003 | 43% | 100% | 99% | 66% | 92% | 94% | 99% |
| 2004 | 34% | 82% | 97% | 48% | 94% | 78% | 63% |
| 2005 | 58% | 100% | 100% | 76% | 98% | 100% | 100% |
| 2006 | 98% | 100% | 99% | 98% | 100% | 99% | 99% |
| 2007 | 89% | 100% | 97% | 92% | 94% | 95% | 97% |
| 2008 | 100% | 100% | 100% | 100% | 100% | 99% | 100% |
| 2009 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 2010 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 2011 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 2012 | 88% | 100% | 97% | 91% | 94% | 94% | 96% |
| 2013 | 80% | 100% | 97% | 90% | 90% | 97% | 100% |
| 2014 | 93% | 100% | 100% | 100% | 95% | 100% | 100% |
| 2015 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 2016 | 100% | 100% | 100% | 100% | 95% | 100% | 100% |
| 2017 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 2018 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 2019 | 96% | 100% | 99% | 97% | 98% | 98% | 99% |
| 2020 | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 2021 | 100% | 100% | 100% | 100% | 98% | 100% | 100% |
| Average | 91% | 99% | 99% | 94% | 97% | 96% | 97% |
| Std Dev | 19% | 3% | 1% | 12% | 5% | 6% | 8% |

Annual Percent Fill of Storage Volume by Entity (1992-2021).[19]

[19] The Fourth Methodology Order included data from 1995 through 2014. This Fifth Methodology Order updates this chart with data from 1992 through 2021.

### C. Average Annual Carryover

70. CM Rule 42.01.g states that the Director "shall consider the . . . average annual carry-over for prior comparable water conditions . . .." Actual carryover volumes are from annual storage reports published by Water District 1. Actual carryover from 1992 through 2021 are sorted into two categories – below average (dry) and above average (wet). The categories are based on Heise natural flow volumes from April through September.

The 1992 to 2021 average natural flow volume is 3,827 thousand acre-feet ("KAF").

| Cat. | Year | Heise Apr–Sept (KAF) | A&B | AFRD2 | BID | Milner | MID | NSCC | TFCC |
|---|---|---|---|---|---|---|---|---|---|
| | | | ------------------------------ | | | Acre-Feet | | ------------------------------ | |
| Below Avg (Dry) | 2001 | 1,968 | 9,902 | 4,217 | 37,430 | 26,854 | 55,132 | 42,421 | 26,917 |
| | 1992 | 2,001 | 11,966 | 11,548 | 31,977 | 28,896 | 16,928 | 19,439 | 3,590 |
| | 1994 | 2,319 | 82,885 | 26,894 | 54,136 | 45,902 | 102,823 | 128,356 | 38,686 |
| | 2007 | 2,320 | 62,739 | 7,962 | 32,138 | 37,761 | 61,744 | 66,807 | 39,999 |
| | 2021 | 2,622 | 73,688 | 988 | 61,327 | 27,448 | 65,393 | 121,946 | 13,581 |
| | 2013 | 2,721 | 55,563 | 21,477 | 54,350 | 34,740 | 55,374 | 135,658 | 23,419 |
| | 2002 | 2,775 | 30,192 | 8,932 | 74,573 | 14,662 | 102,139 | 133,702 | 46,825 |
| | 2004 | 2,833 | 0 | 18,617 | 48,809 | 8,735 | 99,199 | 54,141 | 58,813 |
| | 2003 | 2,931 | 9,401 | 3,904 | 52,550 | 6,944 | 82,895 | 169,674 | 0 |
| | 2016 | 3,012 | 89,845 | 58,689 | 84,302 | 46,050 | 108,482 | 283,728 | 21,497 |
| | 2000 | 3,059 | 69,436 | 20,787 | 107,425 | 45,762 | 161,423 | 205,510 | 56,536 |
| | 2010 | 3,108 | 96,172 | 113,895 | 101,620 | 59,628 | 184,940 | 324,712 | 46,243 |
| | 2005 | 3,195 | 36,665 | 99,097 | 90,190 | 37,593 | 150,623 | 365,001 | 68,352 |
| | 2015 | 3,208 | 88,616 | 57,344 | 73,449 | 47,322 | 130,942 | 208,274 | 44,957 |
| | 2012 | 3,385 | 68,109 | 41,395 | 88,526 | 42,214 | 119,361 | 198,853 | 72,267 |
| | **Avg.** | **2,764** | **52,345** | **33,050** | **66,187** | **34,034** | **99,827** | **163,881** | **37,446** |
| Above Avg (Wet) | 2019 | 3,930 | 88,506 | 106,833 | 113,278 | 48,393 | 203,434 | 406,865 | 94,193 |
| | 2020 | 3,962 | 95,105 | 99,782 | 110,640 | 52,750 | 168,213 | 360,234 | 66,609 |
| | 2006 | 4,079 | 89,311 | 107,682 | 102,873 | 58,755 | 182,612 | 365,672 | 78,562 |
| | 1993 | 4,116 | 102,493 | 123,508 | 154,461 | 60,332 | 264,713 | 300,942 | 104,424 |
| | 2008 | 4,288 | 91,835 | 104,219 | 124,128 | 62,359 | 182,722 | 414,171 | 70,192 |
| | 1995 | 4,447 | 103,295 | 167,451 | 159,214 | 75,451 | 258,028 | 476,312 | 68,576 |
| | 1998 | 4,498 | 100,817 | 144,057 | 157,265 | 69,384 | 227,726 | 494,385 | 156,433 |
| | 2014 | 4,594 | 78,917 | 96,756 | 154,382 | 57,305 | 207,834 | 448,682 | 130,086 |
| | 2009 | 4,613 | 104,174 | 145,530 | 125,688 | 66,935 | 204,581 | 426,779 | 95,533 |
| | 2018 | 4,796 | 93,754 | 115,442 | 92,727 | 50,776 | 163,465 | 351,483 | 54,285 |
| | 1999 | 4,949 | 93,354 | 121,793 | 168,545 | 67,147 | 243,322 | 453,706 | 191,501 |
| | 1996 | 5,583 | 105,209 | 145,019 | 150,358 | 70,250 | 253,786 | 522,790 | 111,459 |
| | 2017 | 6,139 | 110,348 | 219,940 | 168,293 | 67,754 | 258,106 | 528,880 | 169,862 |
| | 2011 | 6,347 | 102,139 | 107,618 | 104,915 | 64,487 | 246,699 | 504,578 | 129,757 |
| | 1997 | 7,007 | 102,539 | 114,684 | 134,906 | 65,307 | 242,758 | 464,411 | 136,926 |
| | **Avg.** | **4,890** | **97,453** | **128,021** | **134,778** | **62,492** | **220,533** | **434,659** | **110,560** |

Actual Carryover Volumes by Entity, Sorted by Heise Natural Flow (1992-2021).[20]

[20] In the Fourth Methodology Order, this table summarized data for the period 1994 to 2014 and adjusted WD 01 carryover values to remove water received for mitigation or water rented by the SWC entity to augment their supplies. This Fifth Methodology Order updates this chart with data for the period 1992 to 2021 and uses raw

71. In considering the principles articulated in CM Rule 42.01.g, the Director will project reasonable carryover shortfalls for members of the SWC. The following table represents the 2018 BLY diversion volumes and total reservoir storage space by entity. By dividing the total reservoir space by the 2018 diversion volume, a metric is established that describes the total number of seasons the entity's reservoir space can supply water.

| | A&B | AFRD2 | BID | Milner | Minidoka | NSCC | TFCC |
|---|---|---|---|---|---|---|---|
| | ------------------------------------- | | | -Acre-Feet- | | | ------------------------------------- |
| Projected Demand (2018 BLY) | 64,192 | 453,890 | 262,211 | 58,417 | 354,851 | 1,026,661 | 1,121,717 |
| Total Reservoir Space | 137,626 | 393,550 | 226,487 | 90,591 | 366,554 | 859,898 | 245,930 |
| Number of Seasons of Reservoir Space | 2.1 | 0.9 | 0.9 | 1.6 | 1.0 | 0.8 | 0.2 |

Total Reservoir Space[21] in Comparison to Demand.[22]

### D. Reasonable Carryover

#### i. A&B

72. A&B's reservoir space has the lowest average annual rate of fill with the highest variability in fill. *See* Finding of Fact 69. In dry years, the potential exists that A&B's actual carryover will be less than the maximum projected carryover need. *See* Finding of Fact 68 & 70. A&B has an approximate two-year water supply provided by its total available storage space. *See* Finding of Fact 71. Because of its lower rate of fill, it is likely A&B will experience carryover shortfalls in consecutive dry years. Based on the evaluation criteria in CM Rule 42.01.g, A&B's reasonable carryover should be the maximum projected carryover need of 22,700 AF. *See* Finding of Fact 78.

#### ii. AFRD2

73. AFRD2 has the highest and most consistent reservoir rate of fill of any member of the SWC. AFRD2's storage space fills 99% of the time and has a fill variability of 3%. As

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carryover values reported by WD 01. Raw numbers were used because adjusted numbers reduced the SWC's potential entitlement to reasonable carryover.

[21] *See* R. Vol. 8 at 1373-74.

[22] This Fifth Methodology Order updates this chart with the new baseline year and calculates new number of seasons of reservoir space values.

shown in the Annual Percent Fill table in Finding of Fact 69 above, its space only failed to fill in 2004 (82%) and 2000 (99%). AFRD2 has a high likelihood of filling during multi-year droughts and after a dry year. *See* Finding of Fact 69. Therefore, any unfilled space in the fall will most likely fill. AFRD2 has an approximate one-year supply available in storage. *See* Finding of Fact 71. AFRD2's storage space only failed to fill in years when the natural flow volume at Heise was less than 3,100 KAF. In a dry year, AFRD2's historical carryover volume is often less than the maximum projected carryover need using the equation set forth in Finding of Fact 68 and 70. Based on the evaluation criteria for reasonable carryover in CM Rule 42.01.g, the reasonable carryover can be adjusted from the maximum projected carryover need without shifting the risk of shortage to the senior right holder. The historical average carryover of 16,700 AF in years when the natural flow volume at Heise was less than 3,100 KAF is the reasonable carryover for AFRD2. *See* Finding of Fact 78.

**iii. BID & Minidoka**

74. Historically, in dry years, BID's and Minidoka's carryover volumes have been well above the maximum projected carryover need and it is unlikely that they will have reasonable carryover shortfalls in the future. *See* Finding of Fact 68 & 70; *see also* R. Vol. 37 at 7105. Based on the evaluation criteria for reasonable carryover in CM Rule 42.01.g, the reasonable carryover can be adjusted downward from the maximum projected carryover need without shifting the risk of shortage to the senior right holder. The reasonable carryover for BID and Minidoka is 0 AF. *See* Finding of Fact 78; *see also* R. Vol. 37 at 7105.

**iv. Milner**

75. Similar to A&B, Milner's reservoir space has the second lowest average annual rate of fill of all entities and has a high degree of variability in fill. *See* Finding of Fact 69. In dry years, the potential exists that Milner's actual carryover will be less than the maximum projected carryover need. *See* Finding of Fact 68 & 70. Milner has an approximate one and one half water supply available in storage. *See* Finding of Fact 71. Because of its rate of fill, it is likely Milner will experience carryover shortfalls in consecutive dry years. Based on the evaluation criteria for reasonable carryover in CM Rule 42.01.g, the maximum projected carryover need of 16,100 AF is the reasonable carryover for Milner. *See* Finding of Fact 78.

**v. NSCC**

76. NSCC has a near-average annual rate of fill in comparison to all entities and an approximate one-year water supply available in storage. *See* Findings of Fact 69 & 71. In dry years, the potential exists that its maximum projected carryover need will be less than its actual carryover. *See* Finding of Fact 68 & 70. Based on the evaluation criteria in CM Rule 42.01.g, the reasonable carryover for NSCC is 113,300 AF. *See* Finding of Fact 77.

**vi. TFCC**

77. TFCC has a near average annual rate of fill in comparison to all entities, but only 20% of a single year's water supply is available in storage. TFCC's storage space fills 97% of

the time and has a fill variability of 8%. *See* Findings of Fact 69 & 71. In dry years, the potential exists that its maximum projected carryover need will be less than its actual carryover. *See* Finding of Fact 68 & 70. Based on the evaluation of the criteria in CM Rule 42.01.g, the reasonable carryover can be adjusted from the maximum projected carryover need without shifting the risk of shortage to the senior right holder. The historical average carryover in dry years of 37,400 AF is the reasonable carryover for TFCC. *See* Finding of Fact 78.

78. Reasonable carryover values for the SWC members are as follows:

| | Reasonable Carryover (Acre-Feet) |
|---|---|
| A&B | 22,700 |
| AFRD2 | 16,700 |
| BID | 0 |
| Milner | 16,100 |
| Minidoka | 0 |
| NSCC | 113,300 |
| TFCC | 37,400 |

**E. Reasonable Carryover Shortfall**

79. Reasonable carryover shortfall is the numerical difference between reasonable carryover and actual carryover, calculated at the conclusion of the irrigation season. Actual carryover is defined as the storage allocation minus the total storage use plus or minus any adjustments. Examples of adjustments include SWC water placed in the rental pool and SWC private leases. Adjustments are unique to each irrigation season and will be evaluated each year. Any storage water deliveries to entities other than the SWC for purposes unrelated to the original right will be adjusted so that the water is not included as a part of the SWC carryover volume. Water that is purchased or leased by an SWC member may become part of the carryover shortfall obligation. *See e.g.* R. Vol. 38 at 7201, n. 11 (Eighth Supplemental Order). Conversely, actual carryover must be adjusted to assure that water supplied by a SWC member to private leases or to the rental pool will not increase the reasonable carryover shortfall obligation to the same SWC member.

80. Reasonable carryover shortfall is calculated as follows:

Reasonable Carryover Shortfall = Actual Carryover – Reasonable Carryover

**F. Determination of Curtailment Date**

81. The Eastern Snake Plain Aquifer Model ("ESPAM") is the best scientific tool available to simulate aquifer and Snake River responses to stresses applied to the aquifer, such as ground water pumping from a well. Curtailment of junior ground water pumpers in response to the SWC Delivery Call would result in a reduction in the withdrawal of groundwater and a corresponding reduction in aquifer stress. ESPAM simulates the effects of the reduction in

aquifer stress and calculates predicted increases in aquifer discharge to the Snake River resulting from the curtailment of ground water pumping from the ESPA.

82. ESPAM simulations can be either steady-state or transient.

83. Merriam-Webster's Dictionary defines steady-state as "a state or condition of a system or process … that does not change in time." *Steady state*, Merriam-Webster.com, https://www.merriam-webster.com/dictionary/steady-state (April 19, 2023). A steady-state ESPAM simulation can only model increases in aquifer discharge to the Snake River resulting from continuous curtailments of an identical magnitude and location until the impacts of curtailment are fully realized. For example, a steady-state analysis of the curtailment of 1,000 acres, assumes that irrigation of the same 1,000 acres is curtailed every year at the same rate of consumptive use, until the impacts of that curtailment reach a steady state, or no longer change from year to year.

84. Steady-state analysis does not calculate the time to reach steady-state conditions nor describe the seasonal timing of the impacts. For the benefits of curtailment predicted by steady-state analysis to be realized by the river, the curtailment must occur continuously until steady-state is achieved. The assumption of continuous curtailment does not reflect reality in the SWC Delivery Call. Curtailments ordered as prescribed in the methodology are neither continuous nor long-term. Irrigation with ground water does not occur at a constant rate throughout the year nor from year to year. It is important to predict what benefits to the river are realized during the irrigation season in which injury has been determined. A steady-state ESPAM simulation cannot predict what benefits are realized during the irrigation season. In contrast, a transient ESPAM simulation will predict the timing of changes in river reach gains.

85. ESPAM was calibrated using one-month stress periods and can simulate a single (or partial) irrigation season of curtailment and predict the resulting increase in aquifer discharge to the Snake River during the same irrigation season using a transient simulation. In the context of this proceeding, the transient approach identifies the junior ground water rights that must be curtailed to produce increases in Snake River flows sufficient to offset material injury in the current irrigation season.

86. Only 9% to 15% of the steady state response is predicted to accrue to the near Blackfoot to Minidoka reach between May 1 and September 30 of the same year.[23] Fifty percent of the steady-state response is predicted to accrue at the near Blackfoot to Minidoka reach within approximately four years. Ninety percent of the steady-state response is predicted to accrue at the near Blackfoot to Minidoka reach within approximately 24 years.

87. A curtailment to a priority date calculated by the steady state analysis method used in the Fourth Methodology Order will only offset 9% to 15% of the predicted IDS. In contrast, curtailment to a priority date calculated with a transient simulation of a single season curtailment will offset the full predicted IDS unless the shortfall exceeds the accruals to the near

[23] The near Blackfoot to Minidoka reach is the reach of the Snake River from which the SWC diverts.

Blackfoot to Minidoka reach by the end of the irrigation season with curtailment of all junior ground water rights.

88. Steady-state simulations are appropriate for evaluating the average annual impact of aquifer stresses that have been, or will be, applied for decades (i.e., ground water pumping year after year, or continuous curtailment to the same date every year). The steady-state simulation of continuous curtailment applied in the Fourth Amended Methodology Order does not simulate the short-term curtailments prescribed in the methodology. The methodology prescribes curtailment only in years with a predicted IDS or carryover shortfall and prescribes the determination of a curtailment priority date that varies with the magnitude of the predicted shortfall.

89. Transient simulations are necessary to evaluate the impacts of aquifer stresses applied for short periods of time (i.e. short-term curtailments with varying priority dates). Transient simulations are necessary to simulate the short-term curtailments prescribed in the methodology.

## CONCLUSIONS OF LAW

1. This order contains the methodology by which the Director will determine material injury to RISD and reasonable carryover to members of the SWC.

2. "The agency's experience, technical competence, and specialized knowledge may be utilized in the evaluation of the evidence." Idaho Code § 67-5251(5); IDAPA 37.01.01.600.

3. Idaho Code § 42-602 states that, "The director of the department of water resources shall have discretion and control of the distribution of water from all natural sources . . . . The director of the department of water resources shall distribute water . . . in accordance with the prior appropriation doctrine." According to the Hearing Officer, "It is clear that the Legislature did not intend to grant the Director broad powers to do whatever the Director might think right. However, it is clear also that the Legislature [in Idaho Code § 42-602] did not intend to sum up water law in a single sentence of the Director's authority." R. Vol. 37 at 7085. "Given the nature of the decisions which must be made in determining how to respond to a delivery call, there must be some exercise of discretion by the Director." *American Falls Res. Dist. No. 2 v. Idaho Dept. Water Resources*, 143 Idaho 862, 875, 154 P.3d 433, 446 (2007).

4. "The prior appropriation doctrine is comprised of two bedrock principles—that the first appropriator in time is the first in right and that water must be placed to a beneficial use." *In Matter of Distribution of Water to Various Water Rights Held by or for the Benefit of A & B Irrigation Dist.*, 155 Idaho 640, 650, 315 P.3d 828, 838 (2012). "The concept that beneficial use acts as a measure and limit upon the extent of a water right is a consistent theme in Idaho water law." *Id.*; *American Falls*, 143 Idaho at 879, 154 P.3d at 450 (stating that while an appropriation for a beneficial use is "a valuable right entitled to protection . . . . Nevertheless, that property right is still subject to other requirements of the prior appropriation doctrine."); *Idaho Ground Water Assoc. v. Idaho Dep't of Water Res.*, 160 Idaho 119, 131, 369 P.3d 897, 909

(2016) (explaining the "policy of beneficial use" serves as a "limit on the prior appropriation doctrine.").

5. "Concurrent with the right to use water in Idaho 'first in time,' is the obligation to put that water to beneficial use." *American Falls*, 143 Idaho at 880, 154 P.3d at 451; *see In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 652, 315 P.3d at 840 (quoting *American Falls*, 143 Idaho at 876, 154 P.3d at 447) (referring to "'the constitutional requirement that priority over water be extended only to those using the water'"). "'It is the settled law of this state that no person can, by virtue of a prior appropriation, claim or hold more water than is necessary for the purpose of the appropriation, and the amount of water necessary for the purpose of irrigation of the lands in question and the condition of the land to be irrigated should be taken into account.'" *In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 650, 315 P.3d at 838 (quoting *Washington State Sugar v. Goodrich*, 27 Idaho 26, 44, 147 P. 1073, 1079 (1915)).

6. "[T]he policy of securing the maximum use and benefit, and least wasteful use of Idaho's water resources, has long been the policy in Idaho." *Idaho Ground Water Assoc.*, 160 Idaho at 131, 369 P.3d at 909 (citing *Clear Springs Foods, Inc. v. Spackman*, 150 Idaho 790, 808, 252 P.3d 71, 89 (2011)). The Idaho Constitution enunciates a policy of promoting "optimum development of water resources in the public interest." Idaho Const. Art. XV, § 7; *Baker v. Ore-Ida Foods, Inc.,* 95 Idaho 575, 584, 513 P.2d 627, 636 (1973). "There is no difference between securing the maximum use and benefit and least wasteful use of this State's water resources and the optimum development of water resources in the public interest. Likewise, there is no material difference between 'full economic development' and the 'optimum development of water resources in the public interest.' They are two sides of the same coin. Full economic development is the result of the optimum development of water resources in the public interest." *Clear Springs*, 150 Idaho at 809, 252 P.3d at 90. "The policy of securing the maximum use and benefit, and least wasteful use, of the State's water resources applies to both surface and ground waters, and it requires that they be managed conjunctively." *Id.*

7. "Conjunctive administration 'requires knowledge by the [Department] of the relative priorities of the ground and surface water rights, how the various ground and surface water sources are interconnected, and how, when, where and to what extent the diversion and use of water from one source impacts the water flows in that source and other sources.' . . . . That is precisely the reason for the CM Rules and the need for analysis and administration by the Director." *American Falls,* 143 Idaho at 877, 154 P.3d at 448.

8. The CM Rules incorporate all principles of the prior appropriation doctrine as established by Idaho law. *American Falls*, 143 Idaho at 873, 154 P.3d at 444; CM Rule 20.02, 10.12.

9. While the presumption under Idaho law is that an appropriator is entitled to his decreed water right and the CM Rules may not be applied to require a senior appropriator to demonstrate an entitlement to the water in the first place, there may be post-adjudication factors relevant to the determination of how much water is actually needed in responding to a delivery call. *American Falls*, 143 Idaho at 877-78, 154 P.3d at 448-49. Under the CM Rules and Idaho law, the Director has the "authority and responsibility to investigate claims when delivery calls

are made," and the "authority to evaluate the issue of beneficial use in the administration context." *In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 652, 315 P.3d at 840. As the Idaho Supreme Court stated, "'[w]hile the prior appropriation doctrine certainly gives pre-eminent rights to those who put water to beneficial use first in time, this is not an absolute rule without exception . . . the Idaho Constitution and statutes do not permit waste and require water to be put to beneficial use or be lost.'" *Idaho Ground Water Assoc.*, 160 Idaho at 131, 369 P.3d at 909 (quoting *American Falls*, 143 Idaho at 880, 154 P.3d at 433). "[T]he Director must have some discretion to balance these countervailing considerations in a delivery call." *Id*. "'If this Court were to rule the Director lacks the power in a delivery call to evaluate whether the senior is putting the water to beneficial use, we would be ignoring the constitutional requirement that priority over water be extended only to those using the water.'" *In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 652, 315 P.3d at 840 (quoting *American Falls*, 143 Idaho at 876, 154 P.3d at 447).

10. In responding to a delivery call under the CM Rules, the Director "may employ a baseline methodology as a starting point for considering material injury," provided the baseline methodology otherwise comports with the prior appropriation doctrine as established by Idaho law. *In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 653, 315 P.3d at 841; *see Methodology Remand Order* at 17.

11. Once the Director determines "that material injury is occurring or will occur," junior appropriators subject to the delivery call bear "the burden of proving that the call would be futile or to challenge, in some other constitutionally permissible way, the senior's call." *American Falls*, 143 Idaho at 878, 154 P.3d at 449; *Methodology Remand Order* at 31. Junior appropriators have the burden of proving by clear and convincing evidence that the delivery call is futile or otherwise unfounded. *In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 653, 315 P.3d at 841.

12. "This case illustrates the tension between the first in time and beneficial use aspects of the prior appropriation doctrine." *In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 650, 315 P.3d at 838. The Idaho Supreme Court has in this case "recognized the critical role of the Director in managing the water resources to accommodate both first in time and beneficial use aspects: 'Somewhere between the absolute right to use a decreed water right and an obligation not to waste it and to protect the public's interest in this valuable commodity, lies an area for the exercise of discretion by the Director.'" *Id.* at 651, 315 P.3d at 839 (quoting *American Falls*, 143 Idaho at 880, 154 P.3d at 451). Thus, in this case the Director may use "a baseline methodology, both as a starting point for consideration of the Coalition's call and in determining the issue of material injury." *Id.* at 650-51, 315 P.3d at 838-39. However, "[i]f changing conditions establish that material injury is greater than originally determined pursuant to the baseline analysis, then adjustments to the mitigation obligation of the juniors must be made when the Director undertakes his mid-season calculations." *Methodology Remand Order* at 18.

13. In the context of conjunctive administration, the Director's methodology for projecting material injury does not impose an obligation upon members of the SWC to reprove

their water rights. To the extent water is available, members of the SWC are authorized to divert and store water in accordance with the terms of their licenses or decrees. Nothing established herein reduces that authorization. The question that the CM Rules require the Director to answer in this proceeding is, when water is not available to fill the water rights of the SWC, how much water is reasonably necessary for the SWC to accomplish the beneficial purpose of raising crops; because what is needed to irrigate crops may be less than the decreed or licensed quantities. *American Falls*, 143 Idaho at 880, 154 P.3d at 451; *see In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 650, 315 P.3d at 838 (quoting *Washington State Sugar*, 27 Idaho at 44, 147 P. at 1079) ("'[i]t is the settled law of this state that no person can, by virtue of a prior appropriation, claim or hold more water than is necessary for the purpose of the appropriation"). Again, "[t]he concept that beneficial use acts as a measure and limit upon the extent of a water right is a consistent theme in Idaho water law." *Id.*

14. Holders of senior-priority water rights may receive less than their licensed or decreed quantities and not suffer material injury within the meaning of the CM Rules. As a result, in-season demand should be viewed in light of reasonableness and optimum development of water resources in the public interest. CM Rules 20 and 42; *American Falls*, 143 Idaho at 876-80, 154 P.3d at 447-51; *In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 650-652, 315 P.3d at 838-40.

15. Here, the Director has established a methodology for determining material injury to members of the SWC. The methodology predicts material injury to RISD by taking the difference between RISD and the FS. The years 2000 through 2021 were analyzed to select the BLY because the period of years captured current irrigation practices in a dry climate. Based upon evaluation of the record, members of the SWC were exercising more reasonable efficiencies during this time period than during the 1990s when supplies were more plentiful. During periods of drought when junior ground water users are subject to curtailment, members of the SWC should exercise reasonable efficiencies to promote the optimum utilization of the State's water resources. CM Rules 20 and 42; *American Falls,* 143 Idaho at 876-80, 154 P.3d at 447-51; *Clear Springs*, 150 Idaho at 807-10; 252 P.3d at 88-91; *In re Distribution of Water to Various Water Rights Held by or for the Ben. of A&B Irr. Dist.*, 155 Idaho at 650-652, 315 P.3d at 838-40.

16. At this time, with the recognition that the methodology is subject to adjustment and refinement, RISD will be equal to the historic demands associated with the BLY (2018) and will be corrected during the season to account for variations in climate and water supply between the BLY and actual conditions.

17. Recognizing that climate and surface water supplies (natural flow and storage) are inherently variable, the Director's predictions of material injury to RISD and reasonable carryover are based upon the best available information and the best available science, in conjunction with the Director's professional judgment as the manager of the State's water resources. Recognizing his ongoing duty to administer the State's water resources, the Director should use available data, and consider new analytical methods or modeling concepts, to evaluate the methodology. As more data is gathered and analyzed, the Director will continue to

review and refine the process of predicting and evaluating material injury. The methodology will continue to be adjusted if the data supports a change.

18. If the Director predicts that the SWC will be materially injured because of a demand shortfall prediction, either in the preseason or in the midseason, the demand shortfall represents a mitigation obligation that must be borne by junior ground water users. If mitigation water in the amount of the projected RISD shortfall cannot be secured or optioned by junior ground water users to the satisfaction of the Director, the Director will curtail junior ground water users to make up any deficit. *See* Order on Pet. for Jud. Rev., at 19, *A&B Irrigation District v. Idaho Dairymen's Association, Inc.*, No. 2008-0000551 (Gooding Cnty. Dist. Ct. Idaho July 24, 2009),

19. In previous years, the Director used steady-state modeling when determining the curtailment priority date. The Department now has multiple years of experience with the methodology to better understand the impact of applying steady-state modeling versus transient modeling to determine a curtailment priority date that would supply adequate water to the senior water right holders. While the first version of the ESPA groundwater flow model was not calibrated at a time-scale that supported in-season transient modeling, the current version was calibrated using monthly stress periods and half-month time steps, a refinement that facilitates in-season transient modeling for calculating the response to curtailment of groundwater use. As part of the Director's ongoing obligation to evaluate the methodology, the Director must evaluate whether the use of steady-state continues to be supportable.

20. In surface water administration, uses by holders of junior priority surface water rights are curtailed until the senior surface water rights are fully satisfied, absent a futile call and if the senior surface water users need the water to accomplish a beneficial use. In other words, under surface water administration, junior surface water rights are generally curtailed unless the senior gets water in the quantity and at the time and place required.

21. Rule 43 of the CM Rules mandates that when the Director evaluates a mitigation plan, the mitigation plan must ensure that water is delivered to holders of senior priority surface water rights in both the quantity and at the time and place required by the senior. In considering a proposed mitigation plan pursuant to Rule 43, the Director must evaluate:

> **b.** Whether the mitigation plan will provide replacement water, *at the time and place required by the senior-priority water right*, sufficient to offset the depletive effect of ground water withdrawal on the water available in the surface or ground water source *at such time and place as necessary* to satisfy the rights of diversion from the surface or ground water source. Consideration will be given to the history and seasonal availability of water for diversion so as not to require replacement water at times when the surface right historically has not received a full supply, such as during annual low-flow periods and extended drought periods.
> **c.** Whether the mitigation plan provides replacement water supplies or other appropriate compensation to the senior-priority water right *when needed during a time of shortage* even if the effect of pumping is spread over many years and will continue for years after pumping is curtailed. A mitigation plan may allow for

> multi-season accounting of ground water withdrawals and provide for replacement water to take advantage of variability in seasonal water supply. The mitigation plan must include contingency provisions to assure protection of the senior-priority right in the event the mitigation water source becomes unavailable.

IDAPA 37.01.03.11.043.b-c (emphasis added). In other words, there is an assumption that senior water right holders calling for delivery of water under the CM Rules will receive, by curtailment or by mitigation, "replacement water at the time and place required by the senior-priority water right, sufficient to offset the depletive effect of ground water withdrawal . . . ." Only in a mitigation plan can "multi-season accounting of ground water withdrawals" be employed, and even then, the plan must "assure protection of the senior-priority right in the event the mitigation water source becomes unavailable."

22. The Director has an obligation to address a mitigation deficiency in the year it occurs. Mem. Decision & Order on Pet. for Jud. Rev., at 10, *Rangen, Inc. v. Idaho Dep't of Water Res.*, No. CV-2014-2446 (Twin Falls Cnty. Dist. Ct. Idaho Dec. 3, 2014); Mem. Decision & Order, at 8–9, *Rangen, Inc. v. Idaho Dep't of Water Res.*, No. CV-2014-4970 (Twin Falls Cnty. Dist. Ct. Idaho June 1, 2015).

23. As described in Finding of Fact 87, curtailment to a priority date calculated by the steady state analysis method used in the Fourth Methodology Order will only offset 9% to 15% of the predicted IDS. In contrast, curtailment to a priority date calculated with a transient simulation of a single season curtailment will offset the *full* predicted IDS unless the shortfall exceeds the accruals to the near Blackfoot to Minidoka reach by the end of the irrigation season with curtailment of all junior ground water rights. This methodology order depends on an annual evaluation of material injury and should also employ curtailment and or mitigation that supplies replacement water at the time and place required by the senior-priority water right in a quantity sufficient to offset the depletive effect of ground water withdrawal and to assure protection of the senior-priority right. Curtailment dates, periodically determined at time of recalculating in-season demand shortfall (IDS), should be calculated by a transient model simulation that will return the full quantity of water to the senior priority rights at the time and place required.

24. As described in Conclusion of Law 18, junior ground water users with approved mitigation plans to deliver storage water as mitigation must, to the satisfaction of the Director, secure or option mitigation water to avoid curtailment. By requiring that junior ground water users secure mitigation water or have options to acquire water in place during the season of need, the Director ensures that the SWC does not carry the risk of shortage to their supply. By not requiring junior ground water users to deliver or assign mitigation water until the Time of Need, the Director ensures that junior ground water users supply only the amount of mitigation water necessary to satisfy the RISD. All approved methods of mitigation shall be considered in the Director's review of projected RISD shortfall.

25. Unless there is reasonable certainty that junior ground water users can secure the predicted volume of water and provide that water at the Time of Need, the protection afforded to the senior water right holders is compromised. The risk of shortage is then impermissibly shouldered by the SWC. Members of the SWC should have certainty entering the irrigation

season and at midseason that mitigation water will be delivered or assigned at the Time of Need, or curtailment of junior ground water rights will be ordered.

26. Because climate and the supply that the SWC appropriated (natural flow and storage) are inherently variable, the Director cannot and should not insulate the SWC against all shortages. The Director can, however, protect the SWC against reasonably predicted shortages to RISD.

27. Currently, the USBR and USACE's Joint Forecast is an indispensable predictive tool at the Director's disposal for predicting material injury to RISD. Given current forecasting techniques, the earliest the Director can predict material injury to RISD with reasonable certainty is soon after the Joint Forecast is issued in early April. The pre-irrigation season supply forecast for A&B and Milner can be predicted solely from the Joint Forecast. To improve the accuracy of prediction, the pre-irrigation season supply forecast for AFRD2, BID, Minidoka, NSCC, and TFCC will currently be predicted from both the Joint Forecast and from flow data at Box Canyon.[24]

28. By shifting the April Forecast Supply prediction curve down one standard error of estimate, the Director purposely underestimates the water supply that is predicted. The Director further guards against RISD shortage by using the 2018 BLY, which has above average diversions, above average ET, below average in-season precipitation, and above average growing degree days. The 2018 BLY represents a year in which water supply did not limit diversions. The Director's prediction of material injury to RISD is purposely conservative. While it may ultimately be determined after final accounting that less mitigation water was owed than was provided, this is an appropriate burden for junior appropriators to carry. Idaho Cost. Art. XV, § 3; Idaho Code § 42-106. Shifting the prediction curve down one standard error of estimate and adoption of a BLY that uses above average diversions, above average temperatures and ET and below average precipitation is necessary to protect senior rights if the Director administers to an amount less than the full decreed quantity of the SWC's rights. *Methodology Remand Order* at 33, 35.

29. 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.

30. "Storage water is water held in a reservoir and is intended to assist the holder of the water right in meeting their decreed needs." *American Falls*, 143 Idaho at 878, 154 P.3d at 449. "Carryover is the unused water in a reservoir at the end of the irrigation year which is retained or stored for future use in years of drought or low-water." *Id.* Under Idaho Code, "[o]ne may acquire storage water rights and receive a vested priority date and quantity, just as with any other water right," but "[t]here is no statutory provision for obtaining a decreed right to 'carryover' water." *Id.* Rather, carryover is a "component of the storage right." Order on Pet. for Jud. Rev., at 20, *A&B Irrigation District v. Idaho Dairymen's Association, Inc.*, No. 2008-

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[24] The method for predicting the natural flow supply may be subject change based upon improved predictive models.

0000551 (Gooding Cnty. Dist. Ct. Idaho July 24, 2009). Storage carryover is "permissible . . . absent abuse." *American Falls*, 143 Idaho at 880, 154 P.3d at 451.

31. The storage reservoirs implicated in this proceeding were intended to provide supplemental supplies of water "to create a buffer against the uncertainty of the weather." *Opinion Constituting Findings of Fact, Conclusions of Law and Recommendation* (April 29, 2008) at 6. "The history of the development of the reservoir system, most recently Palisades, makes it clear that storage of water was a primary purpose to prevent disaster during periods of shortage as have been experienced in the recent past." *Id*. at 60. The purpose of carryover also is "insurance against the risk of future shortage." Order on Pet. for Jud. Rev., at 20, *A&B Irrigation District v. Idaho Dairymen's Association, Inc.*, No. 2008-0000551 (Gooding Cnty. Dist. Ct. Idaho July 24, 2009).

32. CM Rule 42.01 sets forth factors the Director "may consider in determining whether the holders of water rights are suffering material injury and using water efficiently and without waste." CM Rule 42.01 does not limit the Director's determination of reasonable carryover to consideration of the factors enumerated in CM Rule 42.01g, but only requires that the Director consider those enumerated factors. One such factor is "[t]he extent to which the requirements of the holder of a senior priority water right could be met with the user's existing facilities and water supplies." CM Rule 42.01g. This factor is qualified, however, by the provision that "the holder of a surface water storage right shall be entitled to maintain a reasonable amount of carry-over storage to assure water supplies for future dry years." CM Rule 42.01g. Thus, CM Rule 42.01g does not require water right holders to exhaust their storage water supplies prior to making a delivery call under the CM Rules. This is consistent with the purposes of the storage reservoirs and the carryover components of the storage water rights.

33. In considering CM Rule 42.01g in *American Falls*, the Idaho Supreme Court framed the SWC's challenge to the "reasonable carryover" provision as presenting the question of whether the holders of storage water rights are "entitled to insist on all available water to carryover for future years in order to assure that their full storage water is met (regardless of need)," *American Falls,* 143 Idaho at 879, 154 P.3d at 450, and answered this question in the negative:

> At oral argument, one of the irrigation district attorneys candidly admitted that their position was that they should be permitted to fill their entire storage water right, regardless of whether there was any indication that it was necessary to fulfill current or future needs and even though the irrigation districts routinely sell or lease the water for uses unrelated to the original rights. This is simply not the law of Idaho. While the prior appropriation doctrine certainly gives pre-eminent rights to those who put water to beneficial use first in time, this is not an absolute rule without exception. As previously discussed, the Idaho Constitution and statutes do not permit waste and require water to be put to beneficial use or be lost. Supra, paragraph 11.

*Id.* at 880, 154 P.3d at 451.

34. As discussed in the Findings of Fact, reasonable carryover is determined by projecting the water supply for the system. This is accomplished by projecting the 2002/2004 natural flow and average annual storage fill and the 2018 demand. Next, the Director examines the average annual rate of fill of each SWC entity's reservoir space to determine each entity's relative probability of fill. Finally, the Director examines the average annual carryover for prior comparable water conditions by reviewing Heise natural flow.

35. On or before November 30, the Department will issue estimates of actual carryover and reasonable carryover shortfall volumes for all members of the SWC. These estimates will establish the obligation of junior ground water users in providing water to the SWC for reasonable carryover shortfall. Fourteen (14) days following the issuance by the Department of reasonable carryover short fall obligations, junior ground water users will be required to establish, to the satisfaction of the Director, their ability to supply a volume of storage water or to conduct other approved mitigation activities that will provide water to the injured members of the SWC equal to the reasonable carryover shortfall for all injured members of the SWC. If junior ground water users cannot provide this information, the Director will issue an order curtailing junior ground water rights.

36. Recognizing that reservoir space held by members of the SWC may fill, and to prevent the waste of water, junior ground water users are not required to deliver or assign the volume of reasonable carryover until after the Day of Allocation (defined in footnote 27, *infra*). Junior ground water users are obligated to hold the secured or optioned mitigation water until reservoir space held by the SWC fills. If the reservoir space does not fill, junior ground water right holders must deliver or assign the secured or optioned mitigation water to the senior water right holders up to the amount of storage space that did not fill.

## ORDER

Consistent with the forgoing, the Director HEREBY ORDERS that, for purposes of determining material injury to RISD and reasonable carryover, the following steps will be taken:

1. Step 1: By April 1, members of the SWC will submit electronic shape files to the Department delineating the total anticipated irrigated acres for the upcoming year within their water delivery boundary or confirm in writing that the existing electronic shape file submitted by SWC has not varied by more than five percent. Department staff will review submitted shapefiles and modify them as necessary to ensure that: (1) the total acreage count does not exceed the decreed number of acres; (2) all of the irrigated land is located within the decreed place of use; and (3) acres are not counted more than once due to overlapping polygons within a shape file or between shape files submitted by different SWC members. Because the SWC members can best determine the irrigated acres within their service area, the SWC should be responsible for submitting the information to the Department. If this information is not timely submitted, the Department will determine the total irrigated acres based upon past cropping patterns and current satellite and/or aerial imagery. If a SWC member fails or refuses to identify the number of irrigated acres within its service area by April 1, the Department will be cautious about recognizing acres as being irrigated if there is uncertainty about whether the acres are or will be irrigated during the upcoming irrigation season. The Department will electronically post

electronic shape files for each member of the SWC for the current water year for review by the parties. In determining the total irrigated acreage, the Department may account for supplemental ground water use. The Department currently does not have sufficient information to accurately determine the contribution of supplemental ground water to lands irrigated with surface water by the SWC. If and when reliable data is available to the Department, the methodology will be amended to account for the supplemental ground water use.

2. If the acreage count is under reported by more than five percent of the irrigated acreage limit of the water right, then the Department will assess the impact of this reduction in use of the water right on any mitigation requirement.

3. Step 2: Typically within the first two weeks of April, the USBR and USACE issue their Joint Forecast that predicts an unregulated inflow volume at the Heise Gage for the period April 1 through July 31. Within fourteen (14) days after issuance of the Joint Forecast, the Director will issue a final order predicting the April FS for the water year for each SWC entity. The Director will compare the April FS for each SWC entity to the BD for each SWC entity to determine if an in-season demand shortfall ("IDS") is anticipated for the upcoming irrigation season. The April FS for each SWC entity is the sum of the forecasted natural flow supply and the forecasted storage allocation for each SWC entity. The forecasted natural flow supply will be computed with regression algorithms. The forecasted storage allocation will be determined by comparing storage accruals in an analogous year(s). A transient ESPAM simulation will be run to calculate the curtailment priority date predicted to produce a volume of water equal to the IDS in the near Blackfoot to Minidoka reach between May 1 and September 30 of the current year. Curtailment will be simulated within the area of common ground water supply as described by CM Rule 50.01.

4. Step 3: By May 1, or within fourteen (14) days from issuance of the final order predicting the April FS, whichever is later in time, junior ground water users with approved mitigation plans for delivery of water must secure, to the satisfaction of the Director, a volume of water equal to their proportionate share of the April IDS unless the April IDS is revised as explained below in paragraph 6. If junior ground water users secured water for a reasonable carryover shortfall to an individual SWC member in the previous year, the current-year mitigation obligation to the individual SWC member will be reduced by the quantity of water secured for the reasonable carryover shortfall. The secured water will not be required to be delivered to the injured members of the SWC until the Time of Need.

5. Step 4: As soon as practical after the deadline for junior ground water users with approved mitigation plans to provide notice of secured water, the Director will issue an order curtailing junior ground water users who: (1) do not have approved mitigation plans; (2) fail to secure the required water consistent with their approved mitigation plans; or (3) otherwise fail to comply with their approved mitigation plans.[25]

[25] This presumes that any reasonable carryover obligation has been met, and that junior ground water users are not already under prior curtailment from deficiencies in meeting the previous year's obligation.

6. If, at any time prior to the Director's final determination of the April FS, the Director can determine with certainty that any member of the SWC has diverted more natural flow than predicted, or has accrued more storage than predicted, the Director will revise his initial, projected demand shortfall determination.

7. Step 5: If the storage allocations held by members of the SWC fill, there is no reasonable carryover shortfall. If the storage allocations held by members of the SWC do not fill, within fourteen (14) days following the publication of Water District 01's initial storage report, which typically occurs soon after the Day of Allocation,[26] the volume of water secured by junior ground water users to fulfill the reasonable carryover shortfall shall be made available to injured members of the SWC. The amount of reasonable carryover to be provided shall not exceed the empty storage space on the Day of Allocation for that entity. If water is owed in addition to the reasonable carryover shortfall volume, this water shall be delivered or assigned to members of the SWC at the Time of Need, described below. The Time of Need will be no earlier than the Day of Allocation.

8. Step 6: Approximately halfway through the irrigation season, but following the events described in Step 5, the Director will, for each member of the SWC: (1) recalculate RISD; (2) issue a revised FS and (3) estimate the Time of Need date.[27]

9. RISD will be calculated utilizing the project efficiency, BD, and the cumulative actual CWN determined up to that point in the irrigation season. The cumulative CWN volume will be calculated for all land irrigated with surface water within the boundaries of each member of the SWC. Volumetric values of CWN will be calculated using ET and precipitation values from the USBR's AgriMet program, irrigated areas provided by each entity, and crop distributions based on NASS data.

10. The FS for each SWC 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 regression analysis. The storage allocation will be based on the actual preliminary storage allocations issued by the BOR and Water District 01. If the BOR and Water District 01 have not yet allocated stored water to spaceholders, the Department will predict the storage allocations based on an analogous year(s).

11. The calendar day determined to be the Time of Need is established by predicting the day in which the remaining storage allocation will be equal to reasonable carryover. The Time of Need will not be earlier than the Day of Allocation.

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[26] The Day of Allocation is the time in the irrigation season when the Water District 01 watermaster can issue allocations to storage space holders after the reservoir system has achieved its maximum physical fill, maximum water right accrual, and any excess spill past Milner Dam has ceased. Tr. p. 902, lns. 7-25; p. 903, lns. 1-10.

[27] At the earliest established Time of Need for any member of the SWC, junior ground water users are required to provide remaining mitigation to all materially injured members of the SWC.

12. This information will be used to recalculate RISD and adjust the projected IDS for each member of the SWC. The Director will then issue revised RISD and DS values. Any increase to the projected IDS for each SWC entity is an additional mitigation obligation of the junior ground water users.

13. Upon a determination of an additional mitigation obligation, junior ground water users will be required to establish, to the satisfaction of the Director, their ability to secure a volume of storage water or to conduct other approved activities pursuant to an approved mitigation plan that will deliver the additional mitigation obligation water to the injured members of the SWC at the Time of Need. If junior ground water users fail or refuse to submit this information within fourteen (14) days from issuance of a Step 6 order, the Director will issue an order curtailing junior ground water users.[28] A transient ESPAM simulation will be run to determine the priority date to produce the necessary additional mitigation obligation volume by September 30 of the same year. Curtailment will be simulated within the area of common ground water supply, as described by CM Rule 50.01.

14. Step 7: 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; (2) issue a revised FS; 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 and Water District 01.

15. 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, and the cumulative actual CWN determined up to that point in the irrigation season. The Director will then issue revised RISD and IDS values.

16. A transient ESPAM simulation will be run to determine the priority date of water rights that must be curtailed to produce the demand shortfall volume by September 30 of the same year. Curtailment will be simulated within the area of common ground water supply, as described by CM Rule 50.01.

17. Step 8: 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.

[28] This presumes that any reasonable carryover obligation has been met, and that junior ground water users are not already under prior curtailment from deficiencies in meeting the previous year's obligation.

18. 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.

19. Step 9: Following the end of the irrigation season (on or before November 30), the Department will determine the total actual volumetric demand and total actual CWN for the entire irrigation season. This information will be used for the analysis of reasonable carryover shortfall, selection of future BLY, and for the refinement and continuing improvement of the method for future use.

20. On or before November 30, the Department will issue estimates of actual carryover and reasonable carryover shortfall volumes for all members of SWC. These estimates will be based on, but not limited to, the consideration of the best available water diversion and storage data from Water District 01, return flow monitoring, comparative years, and RISD. These estimates will establish the obligation of junior ground water users in providing water to the SWC for reasonable carryover shortfall. Fourteen (14) days following the issuance by the Department of reasonable carryover short fall obligations, junior ground water users will be required to establish, to the satisfaction of the Director, their ability to supply a volume of storage water or to conduct other approved mitigation activities that will provide water to the injured members of the SWC equal to the reasonable carryover shortfall for all injured members of the SWC. If junior ground water users cannot provide this information, the Director will issue an order curtailing junior ground water rights. A transient ESPAM simulation will be run to determine the priority date of water rights that must be curtailed to produce the reasonable carryover shortfall volume by September 30 of the following year. Curtailment will be simulated within the area of common ground water supply, as described by CM Rule 50.01.

IT IS FURTHER ORDERED that this Fifth Methodology Order supersedes all previously issued methodology orders in this matter.

Dated this _21st_ day of April 2023.

Gary Spackman

GARY SPACKMAN
Director

## CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 21st day of April 2023, the above and foregoing, was served by the method indicated below, and addressed to the following:

| | |
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Megan Jenkins
Administrative Assistant II

# 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.