LYLE SWANK
WATERMASTER
Phone (208) 525-7172
Fax (208) 525 7177

IDWR DIRECTOR
GARY SPACKMAN

State of Idaho
Water District 1
900 N Skyline Dr., Suite A
Idaho Falls, Idaho 83402-1718

MEMORANDUM

TO: Gary Spackman, Idaho Department of Water Resources Director
FROM: Tony Olenichak, Water District #1 Program Manager
DATE: December 1, 2017
RE: Reset Date Staff Memorandum

This memorandum was prepared in response to your Order, dated November 20, 2017, requesting a description and discussion of the procedures used by Water District 01 for resetting the accounting system's reservoir water right accrual volumes for federal onstream reservoirs. The memorandum addresses the history and reasons for choosing the procedures and outlines implications of using different procedures to determine appropriate reset dates.

***Irrigation Season, Day of Allocation, Storage Season,* and *Reset Date* Definitions**

Natural flow is distributed to irrigation, storage, and other water rights according to the amounts of natural flow available to water right priorities each day of the year. When reservoir water right annual volumes have been completely satisfied, natural flow can no longer be distributed to the reservoir water rights until the annual volumes have been reset to enable distribution of natural flow to their water rights for the next annual period.

The irrigation season begins when water is first diverted for irrigation, usually sometime after the beginning date listed for the period-of-use on irrigation water rights. The irrigation season ends when water ceases to be put to beneficial use for irrigation on (or before) the ending date of the water right period-of-use. The irrigation season can last up to eight months and begin as early as mid-March and end as late as mid-November but is usually shorter in length depending on weather, crop types, location, and irrigation management.

The date when reservoir spaceholder storage allocations are issued during the irrigation season is called the Day of Allocation. The Day of Allocation closely coincides with the date of maximum reservoir system contents, usually occurring sometime between mid-May and mid-July. Three things must occur prior to the Day of Allocation: 1) Milner Spill ceases following the peak runoff; 2) The maximum physical reservoir system contents have occurred; and 3) The last day of distribution to unfilled reservoir water rights following the peak runoff has occurred. All system natural flow is distributed to water rights senior to reservoir water rights from the Day of Allocation to when the reservoir system approaches its minimum contents in late September or in October.

After the reservoir system reaches its minimum contents and irrigation demand subsides to less than the system's natural flow in September or October, the reservoir system's physical contents begin to increase, signaling the beginning of the storage season. The storage season ends on the following year's Day of Allocation after physical reservoir system contents have reached their maximums and natural flow subsides to a level that is insufficient to satisfy water right priorities equal, or junior, to the reservoir water right priorities. This approximate 10-month storage season extends from late-September to mid-July but is usually shorter during average or below-average water years, and longer during extremely wet years. The storage season overlaps the ending and beginning months of the irrigation season.

The date on which full reservoir water right accruals are reset is defined as the *reset date* in the water right accounting. The *reset date* determines the annual period natural flow can be distributed to previously filled reservoir water rights. For example, if the *reset date* is September 15th, the annual period natural flow can be distributed to reservoir water right volumes is from September 15th of the current year to September 14th of the following year. The primary purpose of the *reset date* is to signal when reservoir water rights filled on the *Day of Allocation* are allowed to come back into priority ahead of other junior water rights, including previously unfilled junior reservoir water rights.

History of *Reset Dates* in the Water Right Accounting

Prior to 1978, water rights were regulated by the Watermaster for only a portion of the calendar year. Water right regulation began when excess water spilling past Milner ceased and the reservoir system reached the maximum physical contents, usually occurring in late spring or early summer. Water right regulation ended when the total reservoir system contents began to increase and natural flow exceeded demand by irrigation water rights in September or October. The Watermaster did not distribute natural flow to reservoir water rights prior to 1978.

Continuing development of new water rights, new diversions, reservoirs, and the severe drought in 1977 prompted the need for stricter water right regulation. The previous accounting methods were insufficient to balance daily natural flow distributions with reservoir storage allocations, carryover, and new accrual to ensure the reservoir system's unused storage equaled the storage physically held in the reservoir system at the end of the *irrigation season*. As a result, the following actions occurred in 1978:

- According to Lyle Swank, the meeting minutes from the February 23, 1978 Committee of Nine Meeting show that Alan Robertson (IDWR Hydrology Section Manager) said, *"Regulation on a longer season will help fill reservoirs and late (water) rights will be charged storage"*.
- Resolution 1 adopted at the 1978 Water District 01 Annual Meeting stated, *"That the Watermaster be requested to make such changes in the established water distribution practices as will result in more accurate deliveries of natural flow and stored water, improved regulation procedures to assure deliveries of water supply and diversion records to the water users, and to assure that all water users are charged for water deliveries on an accurate and equitable basis."*
- Resolution 10 adopted at the 1978 Water District 01 Annual Meeting stated, *"Whereas it is in the best interest of the water users of Water District No. 1 to account for all diversions which might adversely affect any prior natural flow or storage diversions be it resolved that the Watermaster shall collect records of water diversions during the entire year."*

From this point forward, all water rights were regulated according to priorities for the entire calendar year. No distributions of natural flow to junior water rights were made ahead of other unfilled senior water rights.

The newly created year-round water right accounting necessitated the creation of a *reset date* following the *Day of Allocation* when filled reservoir water right accrual volumes were reset to allow distribution of natural flow to reservoir water rights for the next annual period. The *reset* date in the water right accounting for the years 1978 to 1987 was November 1st. During these ten years, Jackson Lake was limited to capturing a water volume less than its reservoir capacity for dam safety reasons. Because the water supply in those ten years was sufficient to fill the limited restricted Jackson Reservoir space in addition to filling downstream reservoirs, the *reset date* of November 1st initially used in the water right accounting received little attention.

The *reset date* received additional scrutiny during the drought year of 1988 when the reservoir system failed to fill. The effect of not resetting the reservoir water right accrual volumes at the beginning of the *storage season* in September or October resulted in a large volume of *unallocated storage* accumulating in the reservoir system. *Unallocated storage* occurs when daily natural flow is in excess of the amount of natural flow distributed to water rights, does not flow past Milner Dam, and does not accrue to a storage water right.

In 1988, in order to minimize the accrual of *unallocated storage* and distribute natural flow to reservoir water rights in priority in September and October, the *reset date* in the water right accounting was moved from November 1st to August 1st. Resetting reservoir water right accrual volumes after storage allocations were issued to reservoir spaceholders on the *Day of Allocation* at the end of the *storage season*, and resetting on (or before) the earliest reservoir water right came back into priority at the beginning of the *storage* season, ensured senior reservoir water rights were distributed natural flow ahead of junior reservoir water rights. Moving the *reset date* to an earlier date reduced the amount of *unallocated storage* accumulating in the reservoir system.

Reservoir water right accrual volumes were reset on October 1st during the 1989 *irrigation season* and were reset on August 15th during the 1990 *irrigation season*. Any date chosen for resetting reservoir water right accrual volumes that falls between the *Day of Allocation* and the day that the 1906 Jackson Lake water right comes back into priority near the end of the *irrigation season* results in identical distributions of natural flow. This was the case for the years 1988, 1989, and 1990. Choosing August 1st, August 15th, or October 1st as the *reset date* would have resulted in the exact same natural flow distribution in all three years because the *Day of Allocation* occurred before August 1st, and the 1906 Jackson Lake storage water right wasn't restored until after October 1st. From 1990 until 1997, an August 15th date continued to be used for resetting annual reservoir water right accrual volumes.

The 1997 water year was one of the wettest years on record and decreased the number of dates available for resetting reservoir water right accrual volumes. The 1906 priority was cut and restored for the final time between August 23rd and September 16th. For that reason, the *reset date* for reservoir water right accrual volumes was moved from August 15th to September 15th. The September 15th date continued to be the *reset date* used in the water right accounting for the next 19 years.

At the end of the 2017 irrigation year IDWR Director, Gary Spackman, sent a letter to Watermaster, Lyle Swank, effectively delaying the resetting of the previously filled reservoir water right accrual volumes until January 1, 2018.

Effect of Lake Walcott Water Right on Natural Flow Distribution to Milner Irrigation District and American Falls Reservoir District #1 (AFRD2) Water Rights

Prior to 1978, natural flow was distributed to junior irrigation water rights ahead of the 1909-priority Lake Walcott storage water right. This included making distributions to Milner Irrigation District's 1916 priority and AFRD2's 1921 priority water rights.

From 1978 to 1987, following the reset of the reservoir water right accrual volumes on November 1st, natural flow was distributed to the Lake Walcott storage water right accrual volume ahead of water right demand that was junior to the 1909 priority. From 1988 through 2016, the Lake Walcott water right accrual volume was reset on or before October 1st preventing natural flow from being distributed to junior water rights ahead of the senior Lake Walcott storage water right until the Lake Walcott water right annual volume was satisfied.

In the water right accounting from 1978 through 2010, the natural flow distributed to the 1909 Lake Walcott storage water right was limited to a flow rate of 2500 cfs while its water right annual volume was being filled in September, October, and/or November. If the natural flow available to the 1909 priority was in excess of the 2500 cfs being distributed to the 1909 Lake Walcott water right, the amount in excess of 2500 cfs was distributed to the demand by water rights with priorities between 1909 and 1921, including Milner Irrigation District's 1916 irrigation water right. If the natural flow exceeded both the 2500 cfs distributed to the Lake Walcott right and the amount distributed to water rights with priorities between 1909 and 1921, the remaining natural flow was distributed to AFRD2 and/or other 1921 priority reservoir water rights accruing natural flow in September, October, and/or November.

The Lake Walcott storage right was not decreed with the 2500 cfs daily flow rate limitation in the Snake River Basin Adjudication. The 2500 cfs limit was removed from the water right accounting in 2011. The effect of removing the flow rate limitation prevented or delayed the distribution of natural flow to Milner Irrigation District's and AFRD2's junior water rights until the senior Lake Walcott water right's annual volume was completely satisfied, usually occurring sometime in October.

***Reset Date* Characteristics and Considerations**

The implications of using different *reset dates* are important to understand before determining a new *reset date* or creating a new procedure that determines the appropriate *reset date* each year. *Reset date* issues include, but are not limited to, the following considerations and characteristics:

- **If reservoir water right accrual volumes are not reset in September or October, junior reservoir water rights that were not filled on the *Day of Allocation* would accrue natural flow ahead of previously filled senior reservoir water rights.** Natural flow distributed to unfilled junior reservoir storage rights in September/October/November/December prior to a *reset date* could reduce the distribution of natural flow to senior reservoir water rights in the subsequent year. The primary purpose of the *reset date* is to signal when the reservoir rights that are filled on the *Day of Allocation* are allowed to come back into priority ahead of other junior water rights, including previously unfilled junior reservoir water rights.

- **A *reset date* occurring prior to when natural flow becomes available to reservoir water right priorities after the *Day of Allocation* prevents junior water rights from coming back into priority in the fall.** It typically takes a few weeks between late-September and November after the *reset date* to completely fill the 1909 Lake Walcott water right volume before natural flow can become available to fill water rights junior to 1909 in October or November. It typically takes the entire winter, and sometimes the entire spring, to fill the 1921 American Falls water right volume before natural flow can become available to water rights with priorities junior to 1921.

- **A later *reset date* that allows junior water rights to come into priority ahead of senior reservoir rights in the fall and winter could delay (or prevent) the fill of reservoir water rights and delay (or prevent) water rights junior to reservoirs from coming into priority in the subsequent spring and early-summer.** Moving the *reset date* to a date later in the fall or winter could extend the time it takes to satisfy Palisades and other junior reservoir water right volumes (or prevent them from being completely satisfied) during the subsequent *irrigation season* in the spring and summer. Extending the time it takes to satisfy the junior reservoir water right volumes would also extend the time it takes before irrigation water rights junior to the reservoirs could come into priority (or prevent them from coming into priority) during the early and mid-irrigation season following the *reset date*.

- **The annual period that natural flow accrues to storage water right volumes determines whether storage accrued in the fall can be used by reservoir spaceholders in the current *irrigation season* or must wait to be used in the following *irrigation season*.** For at least the past 29 years, the annual period when natural flow could accrue to storage water rights and be allocated to reservoir spaceholders extended from the current year's *Day of Allocation* to the following year's *Day of Allocation*, or extended from the current year's *reset* date to the following year's *reset* date. The period-of-use listed on the storage water rights is January 1 to December 31. The Watermaster has interpreted the water right period-of-use to mean the storage water rights are in effect each day of the *calendar year* when natural flow is available to the reservoir priorities and their unfilled volumes. The Watermaster has not interpreted the period-of-use as defining the beginning and ending dates for the annual period of accounting for distributing natural flow to the reservoir water rights' priorities. If the *reset date* is moved from mid-September to January 1st it raises the question, should water stored September through December get added to storage that was allocated on the *Day of Allocation* of the current annual period, or should water stored September through December be allocated to reservoir spaceholders in the subsequent annual period?

- **Using variable *reset dates* or the annual *Day of Allocation* for beginning and ending points of *storage seasons* does not provide a precise 12-month annual period for reservoirs to accrue natural flow to their annual water right volumes.** If the *reset date* is September 15th one year, and changed to November 1st the next year, the opportunity for a reservoir water right to accrue natural flow between *reset dates* is 411 days. If the *reset date* is November 1st one year, and changed to September 15th the next year, the opportunity for reservoir water right accrual is 319 days. If the *Day of Allocation* is used as the beginning and ending period of the annual storage period, the time between *Days of Allocation* would be longer or shorter than a 12-month period because the *Day of Allocation* in consecutive years rarely falls on the same date each year. Only a constant annual *reset date* from year-to-year provides a precise 12-month period for reservoirs to accrue natural flow to their annual water right volumes.

- **Variable annual *reset dates* (instead of using constant annual *reset dates*) could maximize the beneficial use of water above Milner Dam each year.** Variable annual *reset dates* would largely be based on the ability to forecast future conditions. For example, if the reservoir system has an extraordinary amount of carryover storage near the end of the *irrigation season*, the *reset date* could be delayed to allow junior water rights to come into priority in the fall, reducing the amount of water spilled past Milner Dam without preventing the complete satisfaction of reservoir water rights and without affecting the distribution of natural flow to junior irrigation water rights in the beginning of the following *irrigation season*.

- **The annual period for accrual to *Refill 1* storage water rights is the same as the annual accrual period to the base reservoir water rights.** The recently adjudicated *Refill 1* reservoir water rights (subordinated to all other existing and future water rights) allow reservoirs to capture and store natural flow after the reservoir's base water right volumes have been satisfied prior to the *Day of Allocation*. The *Refill 1* water right annual volume is limited to the total combined annual accrual available to the reservoir's base water right(s) necessary to fill all spaceholder storage allocations. Once reservoir water rights have been completely satisfied during their annual period, they can't accrue additional natural flow to their water right volumes until the volumes are reset to begin a new annual accrual period. A January 1st *reset date* could prevent reservoirs from accruing natural flow to their *Refill 1* water rights in September, October, November, and December following the *Day of Allocation* until the reservoir water right accrual volumes were reset on January 1st. Any natural flow physically captured in the reservoir system September to December after reservoir water rights had been satisfied would be considered natural flow being stored without accruing to a water right and be classified as *unallocated storage*.

Summary

For the 29 years prior to 2017, the *reset date* for resetting annual reservoir water right accrual volumes occurred on days between the *Day of Allocation* and when the earliest reservoir priority (1906 Jackson Lake) was restored for the final time near the end of the *irrigation season*. The *reset date* for those 29 years defined the beginning and ending of the annual period natural flow could accrue to reservoir water right volumes, when in priority, until the annual reservoir volumes were satisfied or allocated on the following *Day of Allocation*.

A *reset date* occurring after the *Day of Allocation* and before reservoir water right priorities are restored near the end of the *irrigation season*:

- Maximizes the accrual to reservoir water rights each year;
- Minimizes the *unallocated storage* captured in the reservoir system in the fall;
- Prevents water rights, junior to the reservoirs, from coming into priority following the *reset date* until reservoir water right volumes have been satisfied;
- Allows water rights junior to the reservoirs to come into priority earlier in the spring or summer as a result of senior reservoir water rights being satisfied earlier in the *irrigation season*.

A *reset date* occurring after the *Day of Allocation* and after reservoir water right priorities are restored near the end of the *irrigation season*:

- Prevents or delays the filling of reservoir water rights;
- Could result in a large volumes of *unallocated storage* in the fall;
- Allows water rights in the fall, junior to the reservoirs, to come into priority;
- Could result in distributing natural flow to previously unfilled junior reservoir water rights in the fall while previously filled senior reservoir water rights fail to completely fill before the following *Day of Allocation*;
- Could prevent or delay when irrigation water rights junior to reservoirs come into priority in the following spring and summer while reservoir water rights are still accruing natural flow to their volumes.

A *reset date* that remains constant each year:

- Defines a specific and precise 12-month annual period year-to-year for the distribution of natural flow to reservoir water right storage volumes;
- Eliminates flexibility to vary the *reset date* from year-to-year to maximize beneficial use of water above Milner Dam.

A *reset date* that varies each year based on current hydrologic conditions, circumstances, or forecasts:

- Results in an annual periods greater or less than 12 months to distribute natural flow to reservoir water right volumes;
- Could maximize distribution to water rights upstream from Milner Dam when storage spills past Milner Dam and the reservoir water rights are completely satisfied prior to the start of the following *irrigation season*.
- Could prematurely curtail junior water rights in the fall or keep junior reservoir and other water rights from being satisfied in the spring and summer if forecasts made near the end of the *irrigation season* are inaccurate.