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MEMORANDUM

TO: Gary Spackman, Director, Idaho Department of Water Resources
FROM: Tony Olenichak, Program Manager, Water District #1
DATE: November 2, 2014
SUBJECT: Water District #1 Water Right Accounting and Distribution to Reservoir Water Rights

This memorandum was prepared in response to the order issued September 10, 2014 that lifted the December 27, 2013 stay entered in the contested matter referred to as *In the Matter of Accounting for Distribution of Water to the Federal On-Stream Reservoirs in Water District 01*. The September 10, 2014 order stated, “The Director will also separately request a memorandum from staff pursuant to Rule 602 of the Department’s rules of procedure (IDAPA 37.01.01.602) explaining: (1) how and why water is counted or credited to the water rights for reservoirs in Basin 01 pursuant to the existing accounting methods and procedures; and (2) the origin, adoption, and development of the existing accounting methods and procedures in Basin 01.”

Water Right Accounting Definition and History

Water right accounting is the methodology used by the Watermaster to measure and distribute natural flow to water rights and also track the amounts of storage diverted by canals and pumps within a water district. The term “*distribute*” in this memorandum refers to the water right accounting’s computed portions of natural flow or storage diverted by canals and pumps, and the natural flow accrued to reservoir water rights.

The Water District #1 Watermaster used a hand-calculated method prior to 1978 during the water district’s “*regulation seasons*” to distribute water. The *regulation season* began after canals began diverting water and the reservoir contents began to decrease after Milner Spill ended during the irrigation season. The *regulation season* ended September 30th or when the reservoir system contents began to increase at the end of the water year. *Regulation seasons* used prior to 1978 were longer in duration during drought years than in wet years because of the increased demand on reservoir storage for a longer period while irrigation was occurring. For example, the 1977 water year was considered the worst drought year on record at the time.ⁱ The 1977 Watermaster Report states, “*The 1977 regulation season was about 170 days long, twice normal.*”ⁱⁱ

The hand-calculated methods and the abbreviated time period daily water right accounting was computed prior to the 1978 irrigation season resulted in imbalances between reservoir spaceholder carryover and reservoir system physical contents at the end of the regulation season. This was especially obvious in the 1977 water year when the reservoir system physical content was 105,709 acre-feet less than the spaceholder carryover the Watermaster had calculated.ⁱⁱⁱ The difference between spaceholder carryover and reservoir system physical content occurred in the water right accounting because the Watermaster was (a) distributing too much natural flow to reservoir water rights, (b) distributing too much natural flow to irrigation diversions, and/or (c) creating water right accounting adjustments or credits that create natural flow or storage water that physically didn't exist.

In 1976, the United States Geological Survey (USGS) informed the Committee of Nine of their desire to end their fifty-eight year cooperative agreement providing water measurement along with technical and water regulation services to Water District #1. The cooperative agreement was extended through the 1977 water year due to the extremely low snowpack entering the 1977 season.

Because the institution relied upon for so many years was backing out of the water regulation responsibility, and the necessity to create a more accurate method of water right accounting was becoming apparent, Water District #1 and the Idaho Department of Water Resources (IDWR) embarked on the development of a new, computerized water right accounting program that could be used as a tool by the Watermaster for regulation and to account for diversions and reservoir accruals according to their water rights in a timely manner each day of the year. The purpose of the computerized accounting was not to redefine water rights. The purpose of the new computerized program was to attain a more comprehensive and complete bookkeeping of the daily water delivery to water rights each day of the year with water physically measured and delivered according to the elements of the water rights.

“During the fall of 1977, the Committee of Nine reviewed the possible methods available to provide continuity in the water district and assure that necessary improvements were effected.”^{iv} An updated inventory of water rights and diversions was undertaken and a computerized method of water right accounting was formulated as a result of that review. Proposed changes in water accounting procedures and the reasons for those changes were outlined in a memorandum titled *Proposed Changes in Water Accounting Procedures* sent from Alan Robertson to Bobby Fleenor, Coordinator for District 1 Management Changes, dated December 30, 1977. The new water right accounting procedures implemented during the 1978 irrigation season were explained in the 1978 Watermaster Report titled, *Water Distribution and Hydrometric Work, District No. 01, Snake River, Idaho, 1978*, and remain the basis for water distributed by the Watermaster today.

Current Water Right Accounting Concepts and Procedures

The water right accounting program is a tool used by the Watermaster to compute and distribute available natural flow to water users, and to track their uses of storage water. Water user's natural flow entitlements are defined by their licensed or decreed water rights, while water users' storage entitlements are defined by their contracts with the United State Bureau of Reclamation (USBR) or other water users. The amount of natural flow available for distribution under water users' Idaho state water rights are determined by the water right accounting program on the basis of streamflow measurements, reservoir measurements, diversion measurements, and the reach gain equation. The amount of storage available for delivery to water users is determined by a separate computer program, the storage report, on the basis of the water users' USBR storage contracts and federal reservoir operations that release storage for purposes other than irrigation. The water right accounting program computes how much natural flow would be available for distribution to water rights absent reservoir operations, and distributes natural flow in accordance with elements of the water rights. Diversions in excess of natural flow entitlements are charged against water users' storage allocations or accounts.

The following list includes specific concepts and procedures contained in the daily water right accounting currently used by the Water District #1 Watermaster to distribute water to diversion and reservoir water rights:

- 1) Water right accounting and water distribution to reservoir water rights and diversions are computed for each day of the year in the daily water right accounting computer program.
- 2) The water right accounting program contains many Snake River reaches beginning upstream at Jackson Lake and Henrys Lake, extending downstream to the last reach ending at Milner Dam. Natural flow reach gain is calculated for each reach in the water right accounting using the formula:

$$\text{Reach Gain} = \text{Outflow} - \text{Inflow} + \text{Diversions} + \text{Res Chng Content} + \text{Reservoir Evap}$$

where

Outflow is the river discharge at the end of the river reach;

Inflow is the river discharge at the beginning of the river reach;

Diversions is the sum of diversion discharge from the river reach;

Res Chng Content is the daily increase (positive value) or decrease (negative value) change in physical content of any reservoirs within the river reach;

Reservoir Evap is the increase in river reach evaporation attributed to the expanded water surface area of the river channel due to reservoir construction.

- 3) The total natural flow calculated in the daily water right accounting program is equal to the sum of the calculated reach gains for all river reaches on that day of accounting. Distributing the same natural flow as is physically available in the system prevents the water right accounting from misrepresenting the physical quantities of water available in the system.
- 4) The natural flow distributed to each water right is based on elements of the water right including the water right priority, point of diversion, flow rate, volume, period of use, and any other limitations or conditions contained in the water right.

- 5) The daily natural flow distributed to diversion water rights is limited to the amount of natural flow available at the diversion's water right at the point of diversion, and does not exceed the daily amount diverted by the pump or canal.
- 6) The natural flow distributed to reservoir water rights is limited by the amount of natural flow available to the reservoir water right at the point of diversion, not to exceed the reservoir's water right annual volume limitation. On-stream reservoir water rights do not have a quantity flow rate limitation.
- 7) Natural flow distributed to an on-stream reservoir water right is not limited to the quantity physically flowing into the reservoir when natural flow available to the reservoir water right is physically captured in an upstream reservoir.
- 8) Natural flow distributed to an on-stream reservoir water right is not reduced by (a) the physical amount being released from the reservoir for delivery to downstream diversions, (b) releases to be physically held in downstream reservoirs, or (c) releases due to any reservoir operational decisions for the reasons discussed in subsequent sections of this memo.
- 9) The daily water right accounting does not track where the natural flow distributed to a reservoir water right is physically held in the reservoir system. The water right accounting program computes the natural flow accrued to a reservoir water right, the amount of storage distributed to diversions, and the amount of storage released from the system past Milner Dam each day. The USBR decides where water is held in federal reservoirs upstream from Milner Dam.
- 10) When a diversion's discharge is greater than the amount of natural flow distributed to the diversion's water right, the amount diverted in excess of the natural flow distribution is accounted for as diversion storage-use in the daily water right accounting (Note: Storage allocations and the computations in the storage report are discussed in a subsequent section).
- 11) The *remaining natural flow* at the end of a reach is calculated each day by adding the computed natural flow of the reach to the computed natural flow of all upstream reaches and then subtracting the amount of natural flow distributed to reservoir and diversion water rights upstream.
- 12) When the *remaining natural flow* calculated in the reach at the end of the system (Milner Dam) is greater than the discharge passing Milner Dam, undistributed natural flow was physically stored in the reservoir system on that day. Undistributed natural flow occurs when a portion of the system natural flow is not distributed to a diversion or reservoir water right due to the elements or limitations of the water rights. This undistributed remaining natural flow is surplus to the demand under existing rights and accrues to the unallocated storage account (*UNACCT STOR*).
- 13) When the *remaining natural flow* calculated in the reach at the end of the system (Milner Dam) is less than the discharge passing Milner Dam, natural flow previously distributed (accrued) to a reservoir water right or to the unallocated storage account has been released past Milner Dam. Storage released past Milner Dam is shown in the *STOR PAST MILNER* account in the water right accounting program.

- 14) Physical reservoir system content, each day, is equal to the volume of natural flow accrued to reservoir water rights (*AF STORED*), plus the unallocated storage (*UNACCT STOR*) accrued, plus groundwater exchange pumping, minus reservoir evaporation, minus the storage delivered to system diversions, minus the storage released past Milner Dam.
- 15) Two procedures have been added to the water right accounting program to accommodate deliveries of natural flow to Willow Creek diversions and to decrease the variability of natural flow calculations caused by imperfect and variable water travel times and inaccurate measurement of daily reservoir change in content. These procedures were deemed necessary for daily water management, regulation, and distributing natural flow to water rights. The discrepancies caused by the *Willow/Ririe Correction* and *Reach Gain Averaging* are computed each day and must be added (positive value) or subtracted (negative value) to the water distributed to system diversions and reservoirs to balance the water distributed with system reservoir physical contents.

Distribution of Natural Flow to On-stream Reservoir Water Rights

Natural flow arising upstream from a reservoir's point of diversion is distributed to the reservoir water right when the remaining natural flow in the reach containing the reservoir is greater than the amount of natural flow required to satisfy all downstream senior water rights. The amount of natural flow distributed to a reservoir water right is shown as the amount *accrued* to the reservoir's *AF STORED* account in the water right accounting program. Natural flow distributed to canals and pumps is described as the amount of natural flow physically *diverted* from the river.

The difference between diversions and reservoirs is that natural flow distributed to a diversion physically passes into the canal or pump at the licensed or decreed point of diversion, whereas natural flow distributed to a reservoir water right may be physically stored in another reservoir to maximize storage in the reservoir system and allow the USBR the flexibility to operate their reservoir system to accommodate recreation, fisheries, and other concerns without interfering with the accrual to reservoir water rights.

The amount accrued to a reservoir's *AF STORED* account in the water right accounting is not controlled by (a) the amount of water physically flowing into the reservoir, (b) the amount of water physically being released from the reservoir, or (c) the change in the physical reservoir contents. As a result, the amount accrued to a reservoir's water right can either be greater or less than the physical change in reservoir contents when:

- Natural flow accruing to the reservoir water right is physically being captured in an upstream reservoir.
- The reservoir is physically releasing water to be held in a downstream reservoir at the same time the reservoir is accruing natural flow to its water right.
- Storage is being released from the reservoir for delivery to downstream diversions while the reservoir water right is accruing natural flow.

- Storage is being distributed to a diversion upstream from the reservoir while the reservoir water right is accruing natural flow.
- There are operational releases from a reservoir accruing natural flow, or operational releases from another reservoir upstream of the reservoir accruing natural flow.

It is not possible to determine the accrual to a reservoir water right solely by observing reservoir contents or the amount flowing into or out of a reservoir.

Reservoir Water Right Annual Volume Limit

On-stream reservoir water rights, in the Water District #1 water right accounting program, do not have a flow rate limitation or a period of use limitation. This is different than diversion (canal or pump) water rights that divert water off-stream. Reservoir water rights can accrue natural flow on any day of the year, and can accrue it at any flow rate, limited by the amount of natural flow available to the reservoir water right and the reservoir water right's annual volume.

Natural flow (in priority at the point of diversion) is distributed to the reservoir water right in a reach unless the reservoir water right has satisfied its annual volume limit of accrual. Natural flow available in a reach cannot be delivered to water rights junior to the reservoir priority, until the reservoir water right has accrued its entire annual accrual volume.

The daily natural flow accrual to a reservoir water right is added to its cumulative volume until satisfied. Once the reservoir's cumulative annual volume limit has been satisfied, the reservoir water right can no longer accrue additional natural flow and natural flow can begin to be distributed to junior water rights. The annual cumulative volume accrued to a reservoir water right is not adjusted downwards as water users divert storage for irrigation purposes leading up to, or immediately following the Day of Allocation, nor is the cumulative amount reduced in the daily water right accounting when storage is released past Milner Dam. (Note: The Day of Allocation and storage released past Milner Dam are discussed in subsequent sections). The rationale for not resetting or decreasing the volume of natural flow accruing to reservoir water rights prior to allocating the annual accrual volumes to reservoir spaceholders (i.e., not basing the annual accrual volumes on physical reservoir contents) includes the following reasons:

- The amount accrued to reservoir water rights is based on the physical amount of natural flow available to the water right **on** the day of accrual and is not based on the physical amount held in, or flowing into or out of, the reservoir. The water right accounting program does not determine on what previous **day** or what previous **year** the storage used by a diversion or released past Milner Dam had accrued to the reservoir water right, and does not reset or decrease the volume accrued to the reservoir water right on that previous day (or year) the accrual occurred. For example, if a junior diversion was curtailed from diverting water on May 3rd so that 100 cfs of natural flow could accrue to a senior reservoir storage water right on May 3rd, and a reservoir spaceholder used storage (or storage was released past Milner Dam) on June 5th in the amount of 100 cfs prior to the reservoir system reaching its maximum contents, the senior reservoir water right volume that accrued on May 3rd is not decreased to zero. The Watermaster cannot go back in time to reset the amount accrued to the senior reservoir water right on May 3rd and allow the junior diversion to divert water that was previously curtailed in favor of delivering natural flow to the senior reservoir water right on May 3rd.
- Storage released for flood-control, in-stream flows, fisheries, dam safety, or any other USBR operations is independent of the delivery of natural flow to the reservoir water rights. There isn't any Idaho water right for these federal operational releases. They have no priority, flow rate, or volume that can be distributed by the Watermaster. While these operations can affect the amount of water physically held in the reservoir, they do not affect the natural flow distributed by the Watermaster to water rights.
- If reservoir accrual volumes were reset (decreased) as a result of USBR reservoir operations responsible for spilling water past Milner Dam. Releases from reservoirs not authorized in their water rights could then become the basis for curtailing other appropriators.
- If reservoir accrual volumes were reset (decreased) by USBR reservoir operations, it could result in a federal agency controlling the distribution of natural flow to State of Idaho water rights. For example, the USBR reservoir operations could result in keeping the reservoirs just short of being physically full year 'round to optimize the benefits to in-stream flows, fish, recreation, flood-control, etc. In this example, water rights junior to the reservoir water rights would never come into priority if the distribution of natural flow to the reservoir water rights by the Watermaster were determined by the physical contents held in the reservoirs. This could result in unnecessarily curtailing diversions in years of abundant runoff due to the USBR control of reservoir releases and the water physically captured in reservoirs.

The reservoir accrual annual volumes are reset in the water right accounting program following when the reservoir system reaches its minimum physical contents during the irrigation season. After the reset, the reservoir water right may accrue water under its water right priority towards the annual limit.

Storage Released Past Milner Dam

When the observed (actual) discharge passing Milner Dam **exceeds** the *remaining natural flow* at Milner Dam, the amount exceeding the *remaining natural flow* is storage that has been released from the system. Storage released past Milner Dam can result from several reasons including (a) delivery for hydropower production, (b) delivery for USBR flow augmentation, (c) delivery for Shoshone-Bannock leases, and (d) releases as a result of USBR reservoir operations. USBR reservoir operations include releases for flood control, erosion control, dam safety, gate maintenance, recreation, fisheries, or any other releases the USBR determines are appropriate for their reservoir management based on reservoir physical content, runoff forecasts, or other operational factors.

The water right accounting does not determine how the USBR should operate their reservoirs. Also, the USBR reservoir operations do not control how natural flow is distributed to reservoir water rights according to Idaho water law. The rationale for storage being released past Milner Dam is not determined by the daily water right accounting. Reasons for storage that flowed past Milner Dam are determined by the USBR in consultation with the Watermaster.

Water released past Milner Dam for Shoshone-Bannock storage leases, Idaho Power storage usage, and USBR flow augmentation storage rental is considered as storage “delivered” past Milner Dam. Water passing Milner Dam for other reasons, including USBR reservoir operations, is considered “Milner Spill” or water that is “spilled” from the system past Milner Dam.

Storage releases do not affect storage allocations to reservoir spaceholders unless they result in spilling storage past Milner Dam. Storage releases past Milner Dam must be accounted for because the storage is no longer in the system. When storage is spilled past Milner Dam as a result of USBR reservoir operations, and these releases lower the amounts physically available in the reservoir system, the USBR must determine which reservoir account must be reduced before allocating storage to its spaceholders for use during the irrigation season. This ensures amounts allocated to spaceholders match the amounts physically available in the reservoir system (adjusted for storage diverted and released past Milner Dam). This also ensures reservoir carryover will equal the storage allocations, minus the storage diverted by water users at the end of the irrigation year.

Paper Fill versus Physical Fill in the Water Right Accounting

“*Paper fill*” has been used as a term of convenience to describe the cumulative amount of natural flow accrued to a reservoir water right in the water right accounting program. The term *paper fill* is not a technical term or part of the computer code. “*Physical fill*” has been used to describe the water volume or contents physically held in a reservoir or in the reservoir system. The *paper fill* in each reservoir water right is frequently different than the *physical fill* in the reservoir because of storage deliveries and the practice of physically capturing water (accrued to a reservoir’s water right) in other system reservoirs. The total reservoir system’s (sum of all reservoirs above Milner Dam) *paper fill* will also be different than the reservoir system *physical fill* after storage is diverted by water users and/or any previously accrued storage is released past Milner Dam.

Daily *paper fill* is equal to the total natural flow that is accrued to reservoir water rights on a given day. The system's *paper fill* is equal to the system's *physical fill* if storage has not been delivered to diversions, storage has not been released past Milner Dam, and reservoir evaporation has not occurred. The reservoir system's *physical fill* becomes less than the *paper fill* when any of these things occur. *Physical fill* reflects the volume of water physically held in reservoirs after storage has been diverted by diversions, released from the system below Milner Dam, and evaporated from the reservoirs.

A common misconception is that *paper fill* represents imaginary water created by the water right accounting that does not physically exist. This misconception incorrectly equates the physical fill with the accrual to a reservoir water right. *Paper fill* is the amount of existing natural flow accrued to reservoir water rights without taking into account storage physically moved from reservoir to reservoir, storage diverted by canals and pumps, storage released out the end of the system past Milner Dam, and reservoir evaporation. The daily water right accounting program does not track (a) where reservoir accrual is physically being held in the reservoir system, (b) which individual reservoir's accrual is diverted by canals and pumps, and (c) which individual reservoir's accrual is released past Milner Dam.

Unallocated Storage (UNACCT STOR)

When the observed (actual) discharge passing Milner Dam **is less than** the *remaining natural flow* at Milner Dam, undistributed natural flow (in excess to the demand of existing water rights) has been physically captured in the reservoir system. This amount of natural flow that could not be distributed to a water right (but now resides physically in the reservoir system) accrues to the *unallocated storage (UNACCT STOR)* in the water right accounting. Accounting for this *unallocated storage* is necessary so that physical reservoir system contents (adjusted for storage diverted, storage released past Milner, and reservoir evaporation) balance with the water distributed in the water right accounting.

The computerized water right accounting program does not determine in which reservoir the *unallocated storage* was physically stored, nor does it determine how or when the unallocated storage should be distributed to water users. *Unallocated storage* is simply the amount of natural flow, in excess of demand of existing water rights, arising upstream of Milner Dam, that could not be distributed to a diversion or reservoir water right and was captured in the reservoir system on a day of water right accounting.

The Watermaster decides how to distribute *unallocated storage* after Milner Spill ceases and after the reservoir system has reached its maximum contents. A portion of the *unallocated storage* is set aside to represent the physical contents in Milner Lake not allocated to reservoir spaceholders. The remaining *unallocated storage* may be used to offset storage released past Milner Dam resulting from reservoir operations. Any *unallocated storage* remaining after Milner Lake contents and storage released past Milner Dam have been offset may be added to the accrual of reservoir water rights that have not reached their annual accrual volume limits, and then allocated to reservoir spaceholders. This can result in the storage allocations from a reservoir totaling more than the amount shown as accrued to the reservoir water rights on the *Day of Allocation*, not to exceed the volume limitation of the water rights.

The Storage Report and Day of Allocation

Everything discussed in this memo up to this point has concentrated on the computation and distribution of natural flow to diversion and reservoir water rights using the daily water right accounting computer program. The following information is provided to explain the relationship between natural flow and storage accounting and is provided for informational purposes.

The daily water right accounting utilizes the daily reservoir, river, diversion, evaporation, precipitation, and water right data as input to calculate the daily quantity of natural flow and storage that is distributed to reservoirs and diversions each day. A second computer program (*storage report*) is used to compute storage allocations and carryover of individual spaceholders according to contractual obligations and instructions from the USBR. The *storage report* is a computer program used primarily twice a year. The first usage of the *storage report* program occurs soon after the *Day of Allocation* when it is used to compute storage allocations to spaceholders.

The *Day of Allocation* is the day when these three things have been satisfied: 1) *Milner Spill* ceases for the remainder of the irrigation season; 2) The maximum reservoir system physical contents for the irrigation season have occurred; and 3) The last day of accrual to unfilled reservoir water rights has occurred in the daily water right accounting. Once the water available to reservoir water rights and reservoir allocations are determined, storage allocations to individual spaceholders or diversions are governed by contacts entered between the USBR and reservoir spaceholders and distributed to storage accounts in the *storage report*. If previously accrued storage has not spilled past Milner Dam as a result of USBR reservoir operations, the Watermaster is able to allocate the entire amount accrued in the daily water right accounting to reservoir water rights using the *storage report* computer program.

Storage spilled past Milner Dam is no longer physically available in the reservoir system to be allocated to spaceholders. The water right accounting computer program does not determine which storage allocations should be reduced as a result of storage spilled past Milner. If storage has spilled past Milner Dam, preventing the allocation to spaceholders of the entire volume previously accrued to the reservoir water rights (after being adjusted for storage deliveries and reservoir evaporation), the USBR in conjunction with the Watermaster must determine the reason(s) why previously accrued storage was spilled from the system and which reservoir storage allocations should be reduced as a result of the accrued storage spilled.

After the USBR has determined how storage allocations are to be reduced, the Watermaster enters the adjusted values into the storage report program and publishes the storage allocations for the *Day of Allocation*. The individual spaceholder storage allocations are then transferred from the *storage report* to the diversions in the daily water right accounting. The storage amounts transferred to the water right accounting are the amounts of storage physically available to spaceholders to use during the irrigation season after Milner Spill has ceased.

Cancelling Diversion Storage Usage

Storage usage is charged to diversions when the canal or pump diverts an amount of water greater than the natural flow distributed to the diversion in the daily water right accounting program. The amount exceeding the natural flow (i.e., storage diverted) is deducted from the diversion's storage allocation in the daily water right accounting, with the exception of any storage usage that occurs prior to the last day water is spilled past Milner Dam. Diversion storage usage occurring prior to the last day water is spilled past Milner is *cancelled* and not deducted from a diversion's storage allocation on the Day of Allocation. This practice is based on the assumption that *cancellation* of storage usage does not affect the amount of storage allocated to spaceholders because, if the storage had not been diverted prior to Milner Spill ceasing, it would have resulted in additional spill from the reservoir system past Milner Dam.

Unallocated storage can also be applied to *cancelling* diversion storage usage if the amount of unallocated storage is more than enough to provide a 100% fill to all spaceholders. In this situation, storage usage is *cancelled* according to which days the storage was diverted. Diversion storage usage upstream of Milner Dam is *cancelled* in chronological order as it occurs after Milner Spill ceases, until the amount of unallocated storage available for *cancelling* has been exhausted.

End of Irrigation Year Storage Carryover

Diversions commonly have storage allocated to them from more than one reservoir. Storage allocations shown for each diversion entered into the daily water right accounting program beginning on the Day of Allocation are the sum of all reservoir allocations assigned to the diversion. Allocations from each individual reservoir to each diversion are shown in the storage report. The summed storage allocations entered into the daily water right accounting program do not indicate from which reservoir storage was allocated. At the end of the irrigation year, the cumulative storage usage for each diversion that was computed in the daily water right accounting program is input into the storage report program where it is subtracted from the diversion's storage allocations issued on the Day of Allocation to determine reservoir carryover at the end of the year for each diversion or spaceholder.

Summary

In 1978, the water right accounting was computerized, calculated each day of the year, updated with a more extensive listing of diversion and reservoir water right elements than had been included prior to 1978, and the regulation of water rights on a daily basis for the entire year began to occur from this point forward.

The water right accounting uses the physical water available each day at river, reservoir, and diversion gages to compute the natural flow for distribution to water rights each day.

The water right accounting does not control USBR reservoir operations governed by federal law and management, and the USBR reservoir operations do not control natural flow distribution to water rights according to Idaho water law, assuming sufficient water is released from reservoirs to provide for the delivery of diversion water rights that are in priority.

Paper fill is not a technical term but a term of convenience and is equivalent to the volume of water physically residing in the reservoir system, minus storage diverted by canals and pumps, minus reservoir evaporation, minus storage released past Milner Dam.

Paper fill of an individual reservoir water right's accrual rarely equals the physical contents of that individual reservoir because of the storage delivered to diversions and the USBR reservoir operations that result in water being physically held in other reservoirs or released from the system past Milner Dam.

Natural flow physically captured in the reservoir system that is not delivered to a water right because of water right constraints or limits on a day of water right accounting is accounted as *unallocated storage* residing in the system.

Unallocated storage is used to 1) offset storage released past Milner; 2) offset the physical contents of Milner Lake; 3) added to reservoir water right accruals that have not reached their annual volume limits; and 4) used to cancel diversion storage usage if a sufficient amount of unallocated storage resides in the system after Milner Spill ceases.

The daily distribution of water is computed in the *daily water right accounting program*. The *storage report program* is used to compute storage allocations according to the USBR contractual obligations and instructions. The *storage report* program is used primarily twice a year by the Watermaster on the Day of Allocation and at the end of the irrigation year to determine the allocation and carryover in each reservoir space assigned to each diversion.

The water right accounting and storage report programs' computations and procedures provide for the accurate distribution to water rights and ensure only water physically available to water users is allocated to reservoir spaceholders and diverted by canals and pumps during the irrigation year.

ⁱ Watermaster Distribution and Hydrometric Work, Water District No. 01, Snake River, Idaho, 1977, page 2.

ⁱⁱ Watermaster Distribution and Hydrometric Work, Water District No. 01, Snake River, Idaho, 1977, page 25.

ⁱⁱⁱ Watermaster Distribution and Hydrometric Work, Water District No. 01, Snake River, Idaho, 1977, pages 23-24.

^{iv} Watermaster Distribution and Hydrometric Work, Water District No. 01, Snake River, Idaho, 1978, page 2.