

ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado 81052

For Colorado

Chair and Federal Representative

For Kansas

Lauren Ris, Denver
Lane Malone, Holly
Scott Brazil, Vineland

James T. Rizzuto, Swink

Earl Lewis, Manhattan
Troy Dumler, Garden City
Zach Gale, Syracuse

December 1, 2023

Mr. Lane Malone, Chairman
Mr. Troy Dumler, Member
Operations Committee
Arkansas River Compact Administration

Re: Compact Year 2023 Summary
Assistant Operations Secretary Report

Gentlemen,

In this report, I will provide my perspective as Assistant Operations Secretary on operations that have occurred over the past Compact Year (CY), including communications, Kansas delivery, the Pueblo Winter Water Storage Program (PWWSP), pass-thru & status accounting, and the water issues matrix.

Communications

The Operations Secretary (OS), Assistant Operations Secretary (AOS), and their respective staffs pursue the goal of open and frequent communications regarding Arkansas River operational issues to foster a positive, collaborative, and productive working relationship. General communications are described below, and some topics will be addressed in more detail later in this report.

The OS and AOS met on April 21st in Lamar, Colorado to discuss issues related to John Martin Reservoir (JMR) and the Compact. USGS and USBR staff participated as well.

We met again on November 13th in Lamar. Topics discussed included: CY2023 ARCA meeting coordination and agendas, Kansas account water release, LAWMA pumping and depletions, Pueblo Winter Water Storage Program (PWWSP) in relation to split guidelines and data for use in an analysis of pre/post program on native flows, Multi-Purpose account winter

operations, John Martin Accounting System, and Special Engineering meetings. Tasks were identified and assigned to various people in attendance.

The States continue to communicate on a regular basis on a variety of topics including John Martin Accounting System (JMAS) data updates, PWWSP operational issues, Offset Account operations, Kansas releases, and runoff conditions within the Arkansas River Basin. The ARCA SEC technical group met with on a regular basis throughout the year and is composed of Division 2 staff; Rachel Duran, KS DWR, and myself.

Compact 75th Anniversary

Seventy-five years ago this month (December 14, 1948), the Compact was signed by negotiators for Colorado, Kansas, and the federal government after many meetings to work out an interstate compact on the Arkansas River. The main negotiations were documented and are preserved for reference. I would note that the Compact was signed after the beginning of the first Compact Year (November 1, 1948). Next year, will be the 75th Annual meeting of ARCA as the first ARCA Annual Meeting was held on December 13, 1949, at the Prowers County Courthouse.

On October 21, 2023, the Corps celebrated the 75th Anniversary of the completion of John Martin Reservoir at the dam site. This was a multi-person / multi-agency effort lead by Jake Williams who is the John Martin Reservoir Operations Project Manager. ARCA representatives Jim Rizzuto, federal chair; Lane Malone & Scott Brazil, Colorado Representatives; and Zach Gale, Kansas Representative attend along with some Colorado Division 2 staff. I provided comments on the significance of the Compact and John Martin Reservoir to the region.



John Martin Reservoir Accounts

The attached Figures 1 and 2 show the daily account balances through CY2022 and are attached to the end of this report. **Figure 1** is at the same scale as previously reported for comparison purposes and shows that JMR is operating at the lower end of its capacity. **Figure 2** is provided at a scale that the finer details can be seen. More details about the operations can be found in the Operations Secretary's Report.

Unexpected precipitation occurred in June and July that resulted in three Compact Conservation storage events between June 15th and July 25th with a total inflow into Compact Conservation storage of 48,319 AF.

The Offset Account peaked at 12,262 AF on July 18th with Kansas releasing a total of 10,593 AF. At the end of the Compact Year 7,011 AF remained in the Offset Account.

In CY2023 the Multi-Purpose pilot project had a total of 1,766 AF stored, which amounted to 221 AF of storage charge. The storage charge was transferred to the Kansas Section II Account on the last day of each month there was a balance.

Kansas did not call from its Section II Account in CY2022, therefore Kansas began the irrigation season on April 1st with 6,416 AF in its Section II Account. With the distribution of Compact Conservation storage that was completed on April 16th, we were considering another very limited surface water supply having just 12,935 AF in the Kansas Section II Account and 2,157 AF in the Offset Account at that time. As noted above, precipitation runoff bolstered the surface water supplies and account storage. The Kansas Section II Account peaked at 31,297 AF on July 25th and allowed Kansas to call 32,759 from that account. The Kansas Section II Account ended the season on October 31st with 199 AF.

Kansas Deliveries

In an effort to balance replacement needs from the Offset Account and Kansas demands for surface water the Lower Arkansas Water Management Association (LAWMA), Colorado Division 2 staff, & Kansas DWR staff coordinated on a weekly basis. These meetings started ahead of the Kansas call to release water and continued until after the Kansas release had ended. The coordination during these meetings increased the transparency of operations in general which helped to make the system as efficient as possible. LAWMA provided Kansas with updates on potential supplies they would be delivering to the Offset Account and Kansas kept them apprised of their user demands and anticipated cessation of the release. This communication allowed for LAWMA to ensure deliveries to the Offset Account during the Kansas release which helped bolster the supply to Kansas users and help LAWMA meet their replacement needs. I found these meetings beneficial and hope that they can continue. With limited surface water supply it was good to coordinate where we could to make the most out of the supply for both States.

Kansas release (7/17-8/24/2023): Kansas began a 550 cfs release from the Kansas Section II (150 cfs) and the Offset Accounts (400 cfs) on July 17th. The release rate varied throughout the release period, initially dropping a little due to a precipitation/runoff event and then increasing as demand increased in Kansas. The release rates from the Kansas Section II and Offset Accounts also varied throughout the release. The release continued until the Kansas Section II account was exhausted. See **Figure 3** for the hydrograph.

The release spreadsheet was reviewed and accepted by the States to arrive at the final delivery numbers shown in the **Table 1** below.

Offset Account Release (7/17-8/10/2023)	
Offset Account release	10,593 AF
- consumable	8,850 AF
- non-consumable	1,743 AF
Offset Account delivery efficiency	74.08%
Offset net delivery	7,847 AF
Offset consumable delivery	6,556 AF
Evaporation Delivery Credit	39 AF

Kansas Section II Account Release (7/17-8/24/2023)	
Kansas Section II Account release	32,759 AF
Equivalent Stateline Flow (ESF) delivery	33,539 AF
ESF delivery efficiency	102.04%
Kansas Section II delivery	32,759 AF

Table 1 – Kansas Release

Kansas Release Spreadsheet: In CY 2021 Kansas noted that the release spreadsheet did not allow for the target flow at Granada to vary based on the release rate. Per the Offset Account Crediting Agreement, the target flow should adjust based on the release rate; the agreement describes that procedure. An additional issue was identified in CY2023 that the antecedent flow calculation had inadvertently been altered and was pointing to the incorrect period. The States restored that calculation to consider the correct period when determining the Stateline antecedent flow. As I have previously noted, this may be a good time for the States to review other aspects of the release spreadsheet given our experiences since this spreadsheet was implemented.

Pueblo Winter Water Storage Program

As noted in past reports, the States continue to work on this issue. PWWSP issues have held up approval of the Operations Secretary’s annual reports since 2007. This issue has been bifurcated: (1) the changes in river operations pre- to post-PWWSP and (2) the determination of the split between Compact conservation storage and PWWSP water as it passes through the Ark River at Las Animas USGS gage.

Both States have conducted evaluations of the pre and post program conditions to determine program impacts, but it was recognized that the base data used needed to be agreed to so that the evaluations were using the same data set. As Colorado advances the Arkansas River

Decisions Support System it will be easier to separate out the water that should not be considered when evaluating the program impacts.

Regarding the determination of the split between Compact conservation storage and PWWSP, the States have developed guidelines to provide a more objective determination. In CY2023, Colorado staff reviewed and provided modifications to these guidelines. These guidelines are truly a living document, that is updated as new situations are encountered. The States will meet after the Annual Meeting to work through the guidelines.

Prior to the start of CY2023 (November 2022), Division 2 installed temporary measuring gages on two Las Animas Consolidated waste ways and on the tail-end of the ditch to capture the period of November 1st to the 14th to determine how much water was being passed thru the Las Animas Consolidated Ditch. **Figure 4** below shows the flows for both the Purgatoire River and the Arkansas River near Las Animas. A second operation that impacted the split determination was a reservoir trade (a.k.a. bookover exchange) that occurred between John Martin and Pueblo Reservoirs on November 10, 11, & 12 that affected Arkansas River flows at the Las Animas gage. The Arkansas River flows near Las Animas were modified to reflect both the water returned through the Las Animas Consolidated wasteways and the reservoir trade operations. The States worked together to establish the Compact baseflow for this year and the resulting split. **Figure 5** shows the comparison of the adjusted to the non-adjusted baseflows for the period of November 1st to the 14th.

**USGS 07124000 ARKANSAS RIVER AT LAS ANIMAS, CO.
USGS 07128500 PURGATOIRE RIVER NEAR LAS ANIMAS, CO**

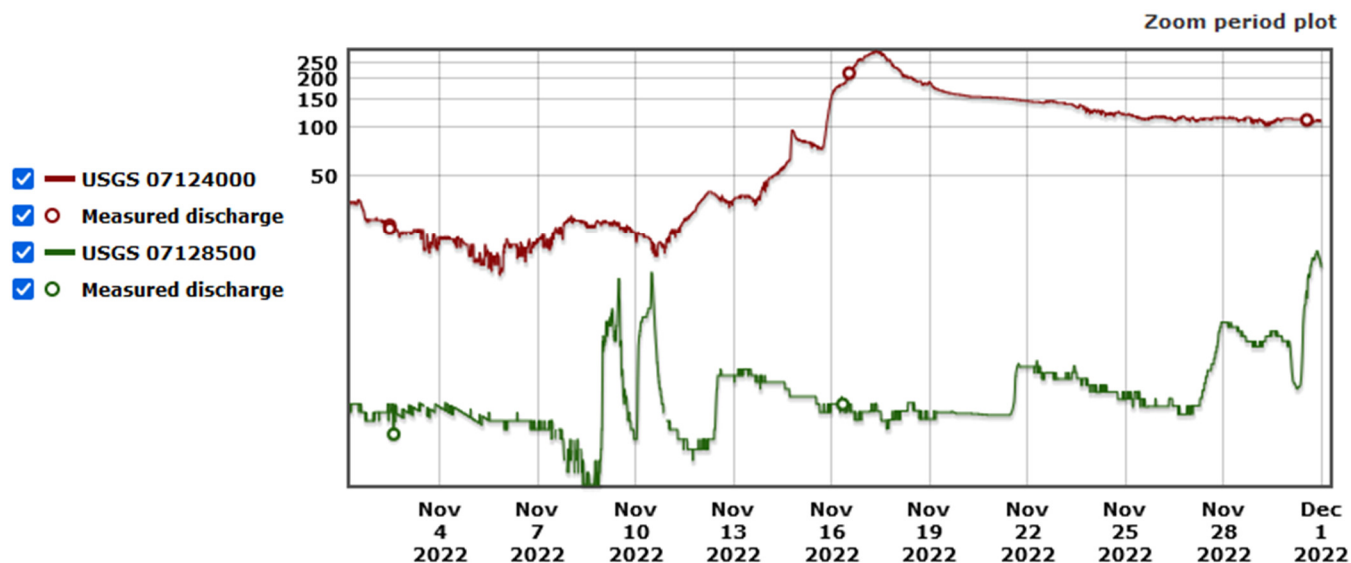


Figure 4 November 1st through November 30th flows for Arkansas River at Las Animas and Purgatoire near Las Animas (graphics from USGS website).

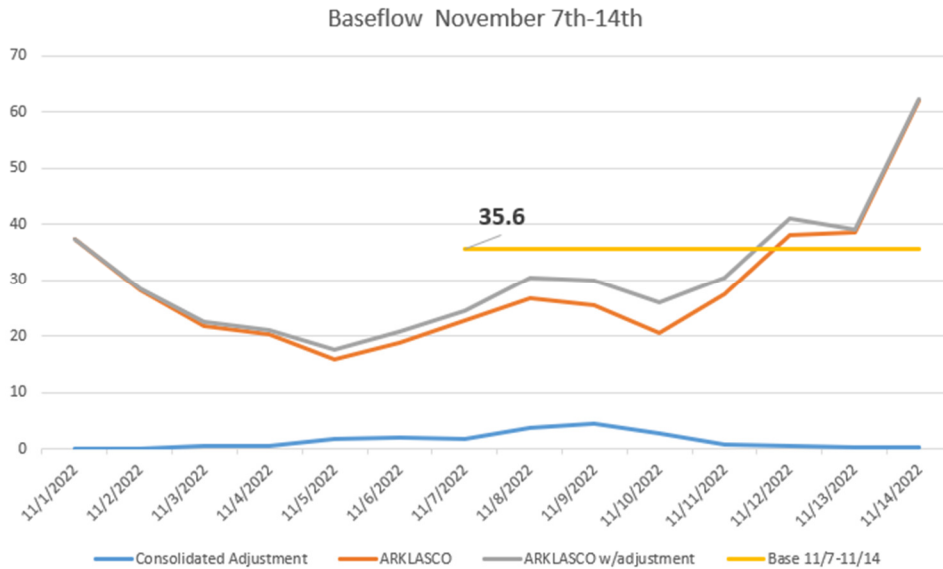


Figure 5 Graphic provided by Bill Tyner (November 25, 2022 email) showing the impacts of the base flow adjustments and the final determined baseflow of 35.6 cfs.

There was an operational change where the Colorado Canal stopped diverting and the Fort Lyon Storage Canal started diverting on January 5, 2023. This resulted in reduced flows that moved down through the system and caused a reevaluation of the split. The States worked together to calculate the new split between Compact conservation storage and the Pueblo Winter Water Storage Program. See **Figure 6** below.

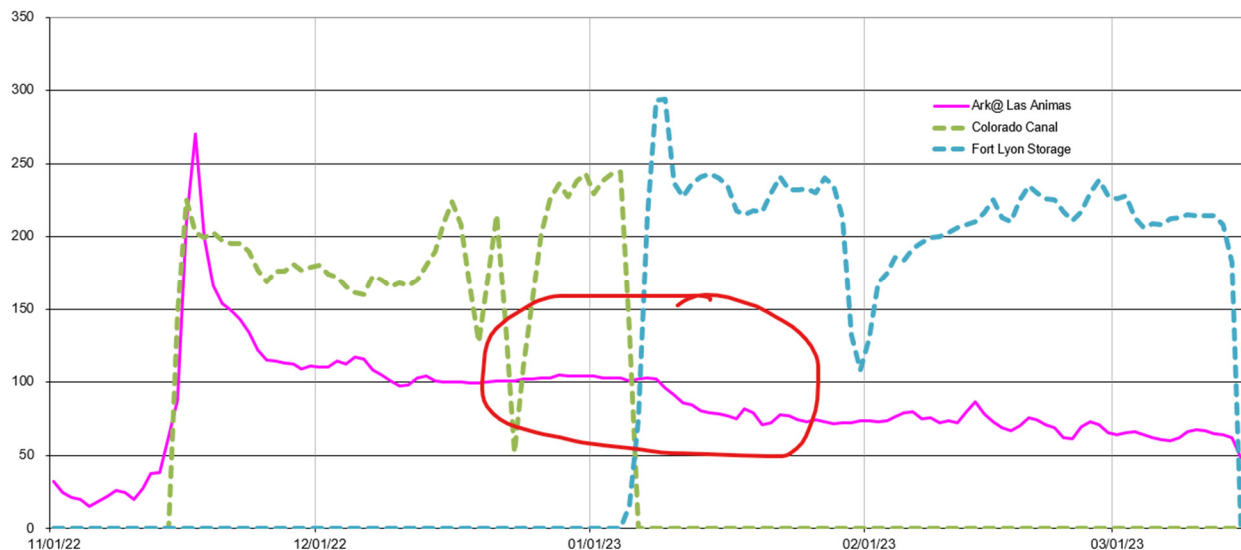


Figure 6 Shows operational change of Colorado Canal ceasing diversions and the Fort Lyon Storage Canal starting diversions on January 5th along with the impacts on the Arkansas river near Las Animas flows.

CY2024 PWWSP: Division 2 again installed temporary measurement gages on two Las Animas Consolidated waste ways and on the tail-end of the ditch for a third year primarily to capture any flows occurring during the period of November 1st to the 14th at these locations. The States met on November 30th and December 1st (2023) to review the flow values for determination of the Compact (Baseline) and Enhanced flow values to be used for the split between Compact conservation storage and the PWWSP in JMR.

Pass-thru and Status Accounting

Related to John Martin Reservoir operations, there are two aspects that I have endeavored to track using a spreadsheet. One is the quantity of water that is passed through JMR without storage and the second is the “status” or the difference between the JMAS (John Martin Accounting System) reservoir content and the Corps content on any given day.

The spreadsheet inputs include: river flows; JMAS inflows and releases; and Corps JMR evaporation, storage, & releases. Using this data, the spreadsheet calculates: (a) gaged and ungaged inflows, (b) pass-thru, and (c) the reservoir “status.” This spreadsheet was updated by Garden City Field Office staff and was provided to the OS on November 21st for inclusion in the Operations Secretary’s report.

ARCA Special Engineering Committee

The Special Engineering Committee (SEC) was not as active over the past Compact Year as tasks were worked within the ARCA SEC technical group. The ARCA SEC technical subcommittee strove to meet every two weeks throughout the Compact Year. These technical subcommittee discussions provided the opportunity for the State staffs to discuss issues related to the ARCA SEC and other current issues as well.

Multi-Purpose Account Pilot Project

This past year was the second year and first full year of operations under this pilot project. Additional sources were added at the request of two different entities and after review by the States. The States continue to work towards a procedural guideline for adding additional sources for delivery to and storage in the Multi-Purpose Account. There is at least one entity that is requesting additional sources be allowed to be stored in this account.

Multi-Purpose Account operations were evaluated and recommendations were made. The States will work to address these recommendations in CY2024 along with completing a second evaluation of operations under this pilot project.

Water Issues Matrix

As previously reported, this matrix is a joint work product of the States which is designed to track various disputed issues. These disputed issues are primarily concerned with JMR related operations and accounting, of which approximately half have been resolved. An updated Water Issues Matrix was not produced for this report but given new staff in both States an effort to update this document has been started as it remains a useful tool to track issues.

Summary

Communication between the States is valuable to work through issues that will arise and as we continue to work on long-standing issues. When we meet, we have invited our federal partners and others to attend and provide input. This has been good to further develop those relationships and provide an understanding to the respective roles. I look forward to working with the Operations Secretary and others on the issues before us in this upcoming year.

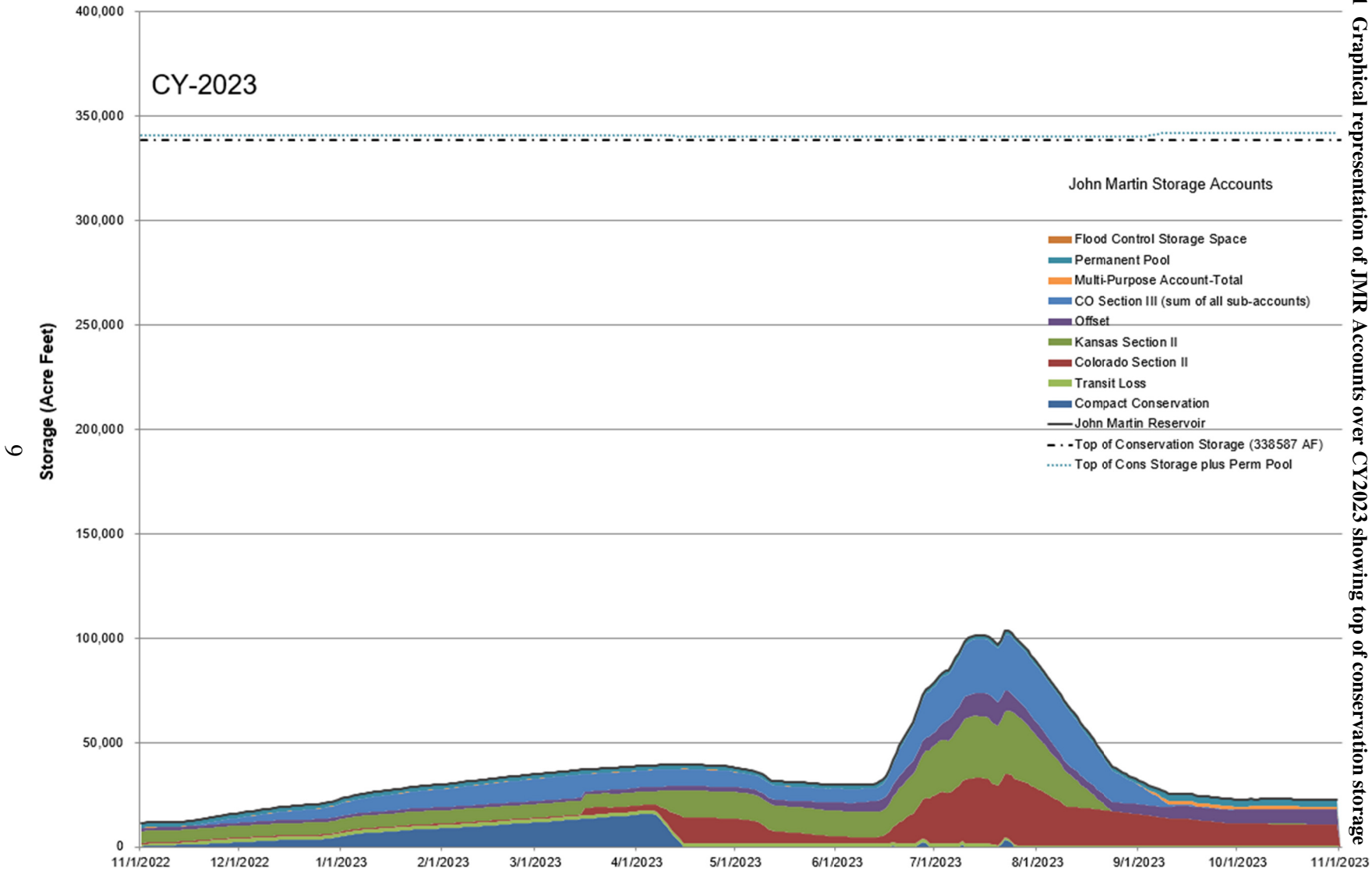
Sincerely,



Kevin L. Salter, P.E.
Assistant Operations Secretary



Figure 1 Graphical representation of JMR Accounts over CY2023 showing top of conservation storage



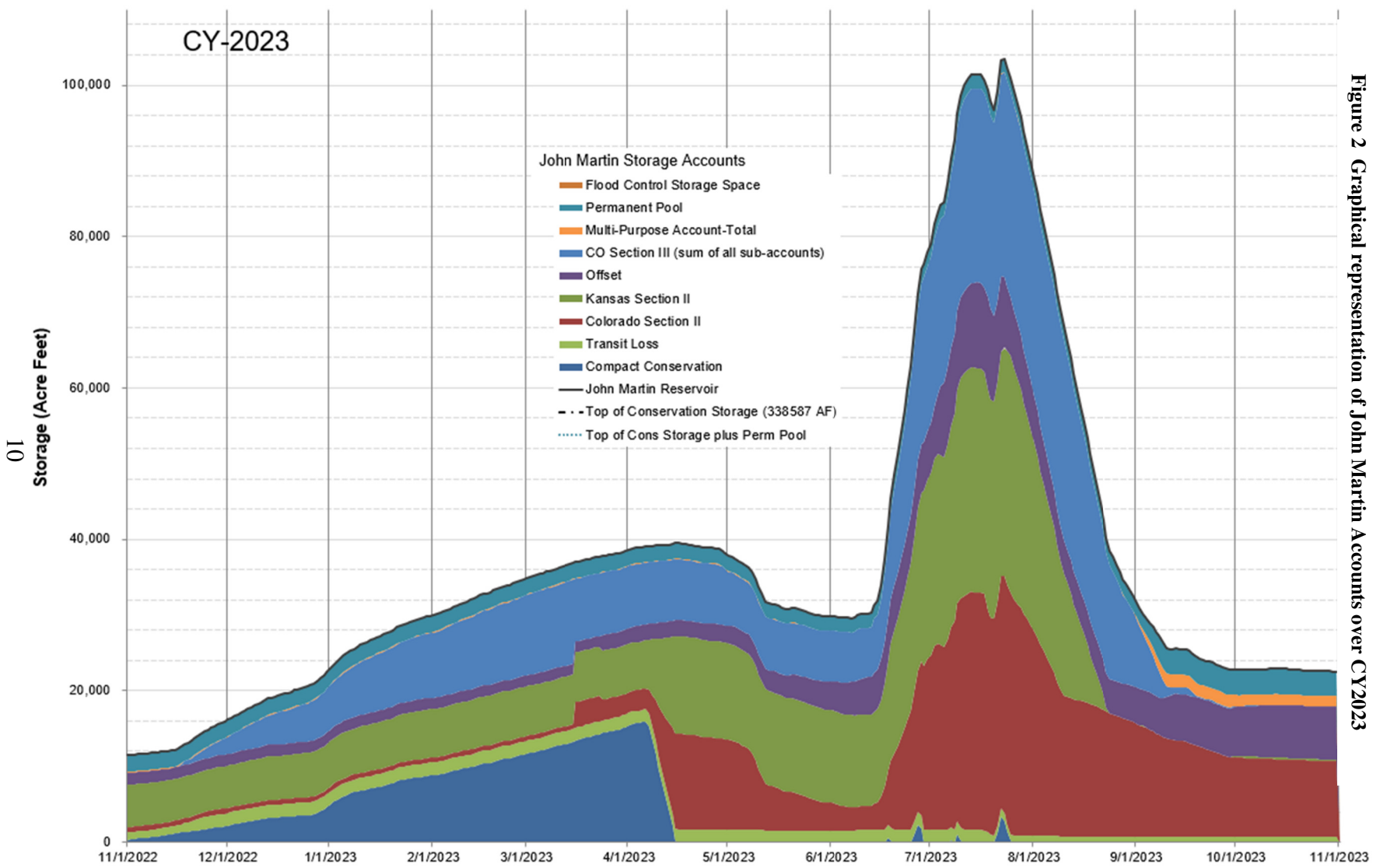


Figure 2 Graphical representation of John Martin Accounts over CY2023

Figure 3 Hydrograph of the Kansas CY2023 release (7/17-8/24/2022) at the Stateline

