

ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado 81052

For Colorado

Chair and Federal Representative

For Kansas

Rebecca Mitchell, Denver
Lane Malone, Holly
Scott Brazil, Vineland

James T. Rizzuto, Swink

Earl Lewis, Manhattan
Randy Hayzlett, Lakin
Troy Dumler, Garden City

December 1, 2022

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

Re: Compact Year 2022 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. With the changing staff and anticipated changes, it will be important for both States to keep up frequent and effective communication through the next year.

The OS and AOS met on April 20th in Lamar, Colorado to discuss issues related to John Martin Reservoir (JMR) and the Compact. USGS, Corps, and USBR participated as well.

We met again on November 8th in Lamar. Topics discussed included: 2022 ARCA meeting coordination and agendas, 75th anniversaries of the Compact & completion of JMR, Kansas releases from the Offset Account, transit loss on Colorado's Shortfall delivery, LAWMA pumping and depletions, 2022 dryup, 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, Offset Account 5-Year Review, ARCA annual reports, and Special Engineering meetings and work. Others in attendance included Lane Malone, Colorado ARCA representative; Troy Dumler, Kansas Compact Representative; the Corps; and USBR.

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. Again, we need to establish communications with new staff on these issues as they come up during the year.

Compact and John Martin Reservoir 75th Anniversary

The Compact was signed by negotiators for Colorado, Kansas, and the federal government on December 14, 1948, 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) and the first ARCA Annual Meeting was held on December 13, 1949, at the Prowers County Courthouse. The Compact may want to recognize its 75th annual meeting in December 2024.

At the 2021 ARCA committee and annual meetings, ARCA had asked that a committee work with the federal agencies to plan the celebration for the Compact's 75th anniversary. From this directive, I have corresponded with the Corps and others, in part providing information on the 50th anniversary celebration. The makeup of that committee is needed and would suggest regular coordination between that group during Compact Year 2023 as no definitive plans have been started.

It will also be the 75th Anniversary of the completion of John Martin Reservoir. Jake Williams is the new John Martin Reservoir Operations Project Manager and has been tasked with leading the Corps celebration of this event. It would seem to be natural for both these celebrations occur together. The 50th celebration was held in May 1998, so things may need to come together relatively soon.

John Martin Reservoir Accounts

The attached Figures 1 and 2 show the daily account balances through CY2022. 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.

Kansas Deliveries

Kansas began the irrigation season on April 1st with 1,255 AF in its Section II Account and ended the season on October 31st with 5,641AF in that account. No releases were made from the Kansas Section II account. Kansas did make two releases from the Offset Account that will be described below.

Due to the dry river conditions, the limited account water supply available to Kansas, and the lack of summer precipitation-runoff events, there was not a call from Kansas Section II account in CY2022. As Colorado had a significant Shortfall (3,323 AF) in 2022 from the Ten-Year Compact Compliance table, Kansas did call for releases from the Offset Account.

To consider these releases, the Kansas ditches and Kansas Division of Water Resources staff met to discuss the expected transit losses related to a potential delivery from JMR. The Kansas ditches chose to not call for Kansas Section II account water instead leaving it in the reservoir to be part of the potential supply in CY2023. They also agreed that an Offset Account delivery could not be delivered to the lower Kansas ditches, but could be delivered to the Frontier Ditch located at the Stateline

An additional consideration was in understanding that not calling water from the Offset Account would create more of a hardship for Colorado in complying with groundwater depletion replacement obligations that are reliant on Offset Account deliveries. Kansas chose to release the 2022 Shortfall, the current year monthly depletion replacement, and other water available in the Offset Account subaccounts. To make beneficial use of the limited supply, Kansas delivered to their most upstream ditch, the Frontier Ditch, as the water would not have made it to the Kansas ditches further downstream. For this reason, a lower release rate was requested and discussed with Division 2 as Kansas would not be able to call that water down at a higher rate and put it to use.

First release (5/31-6/9/2022): Kansas began a 70 cfs release from the Offset Account on May 31st, expecting approximately 30 cfs at the Frontier Ditch. The release rate remained constant during this release period. The release was stopped on June 9th due to a precipitation runoff event. A graphic of this release is shown in Figure 3 attached.

The first 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 (5/31-6/9/2022)	
Offset Account release	
- consumable	1,296 AF
- nonconsumable	0 AF
Offset Account delivery efficiency	78.21%
Offset net delivery	1,014 AF
Offset consumable delivery	1,014 AF

Table 1 – Kansas First Release

Second release (6/17-8/3/2022): On June 17th Kansas began a second release of 70 cfs from the Offset Account. The release rate remained constant during this release period and continued uninterrupted until August 3rd. A graphic of this release is shown in Figure 4 attached.

The second release spreadsheet was reviewed and accepted by the States to arrive at the final delivery numbers shown in Table 2 below.

Offset Account Release (6/17-8/3/2022)	
Offset Account released	
- consumable	4,777 AF
- nonconsumable	1,778 AF
Offset Account delivery efficiency	52.31%
Offset net delivery	3,429 AF
Offset consumable delivery	2,499 AF

Table 2 - Kansas Second Release

Kansas Release Spreadsheet: In my CY2021 AOS report I had noted that in CY2021 the States were not able to resolve two issues related to the target flow at Granada. Specifically, whether the inclusion of the full Transit Loss Account release is appropriate in the average the release rate. Bill Tyner was willing to accept the delivery numbers with the condition that the States work through this. A second issue was identified as to whether the target flow should be varied with the changes in the release rate during a run. As noted previously, 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. As these issues were not relevant to the CY2022 releases there was no resolution of these issues nor has the release spreadsheet been reviewed.

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. Colorado staff reviewed and provided modifications to the guidelines on how the river flow at the Arkansas River at Las Animas gage should be "split" between PWWSP and Compact conservation storage. These guidelines are truly a living document, that is updated as new situations are encountered. At the end of the program in March 2022 an operational change occurred. The States worked through

how that operational change affected the split. Again, this year the flows for the Arkansas River near Las Animas were modified to reflect water returned from the Las Animas Consolidated and by a bookover exchange that occurred in John Martin Reservoir.

Another aspect of the PWWSP issue is evaluating the pre and post program conditions to determine program impacts. Both States have conducted evaluations, but it was recognized that the base data needed to be agreed to. 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.

CY2022 PWWSP: In order to answer the questions of if and how much water was being passed thru the Consolidated Ditch, Division 2 installed temporary measuring gages on two Consolidated waste ways and on the tail-end of the ditch for the period of November 1st to the 14th. The hydrographs below show the Consolidated Ditch diversions and the impacts of diversions and returns through the waste ways on the flows for the Arkansas River at Las Animas and the Purgatoire River near Las Animas. See Figure 5. These measuring stations were in operation and showed that water was released through the two waste ways between November 1st to November 14th period. The Division 2 office has provided me with the flows for the waste ways and the flow out the end of the ditch. As in previous years, the States worked together to establish the Compact baseflow for this year and the resulting split.

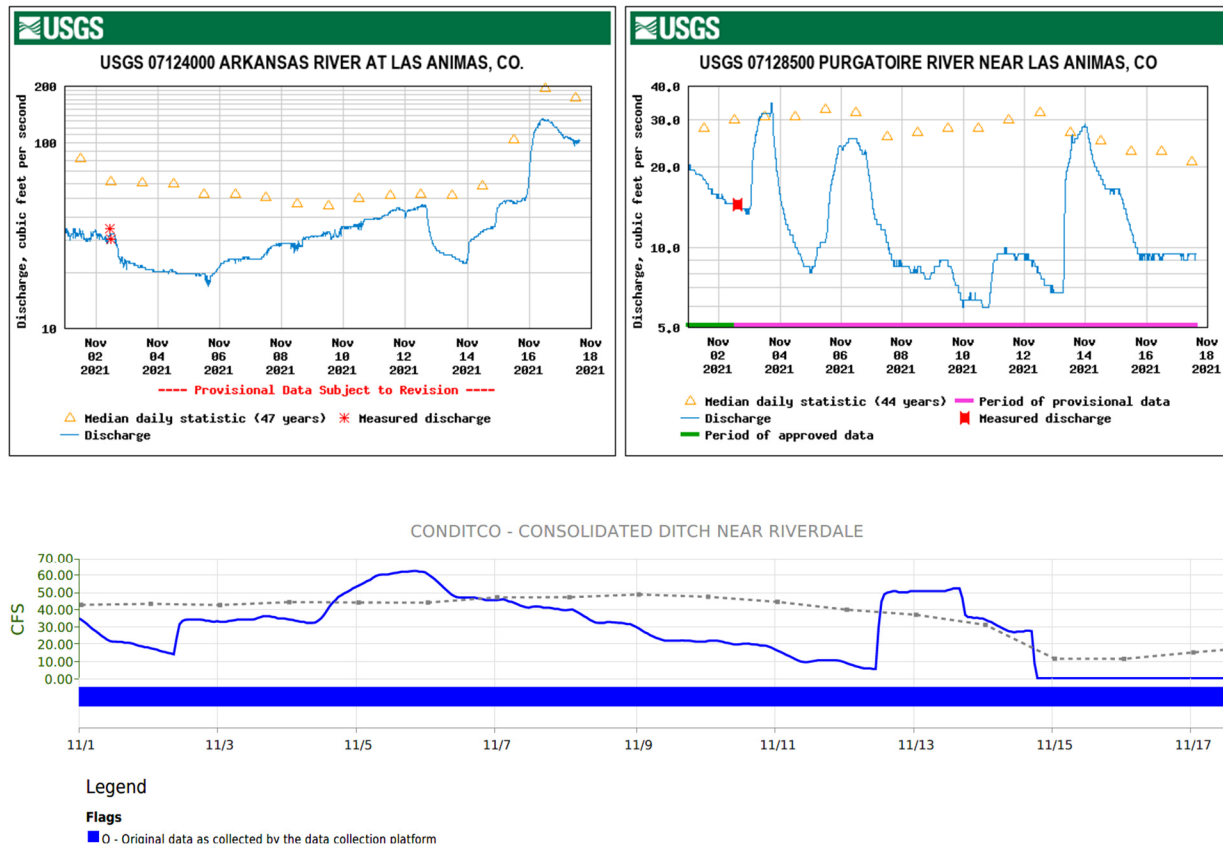


Figure 5 November 1st through November 17th flows for Arkansas River at Las Animas, Purgatoire near Las Animas (graphics from USGS website) and the Consolidated Ditch diversions).

As noted above, there was an operational change where both the Colorado and Fort Lyon Storage Canals ceased diversions around March 1, 2022. This resulted in additional flows that moved down through the system and caused a reevaluation of the split. See Figures 6 and 7 below. The States worked together to calculate the new split between Compact conservation storage and the Pueblo Winter Water Storage Program.

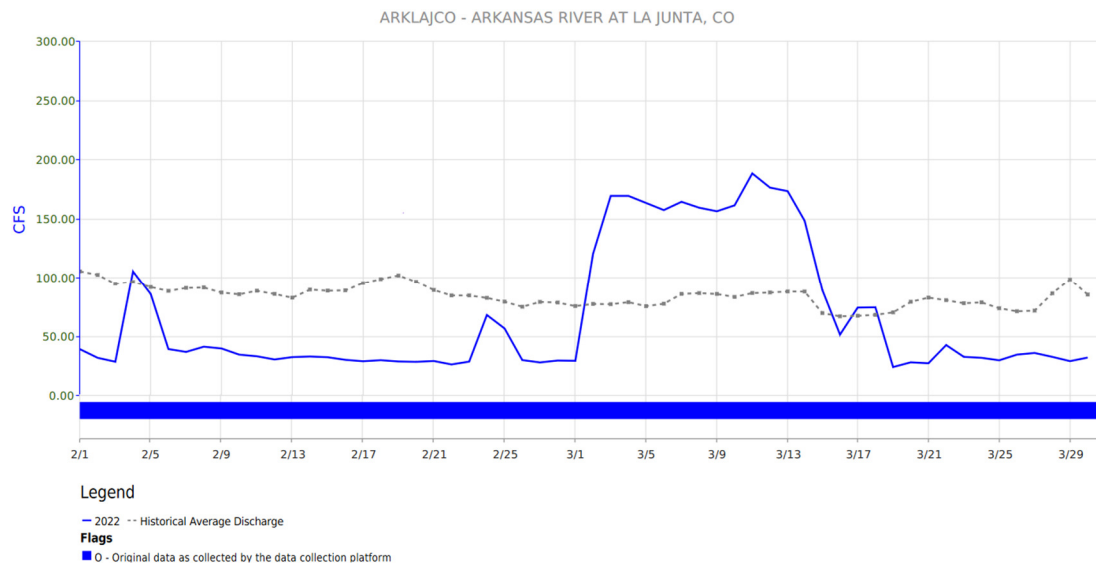
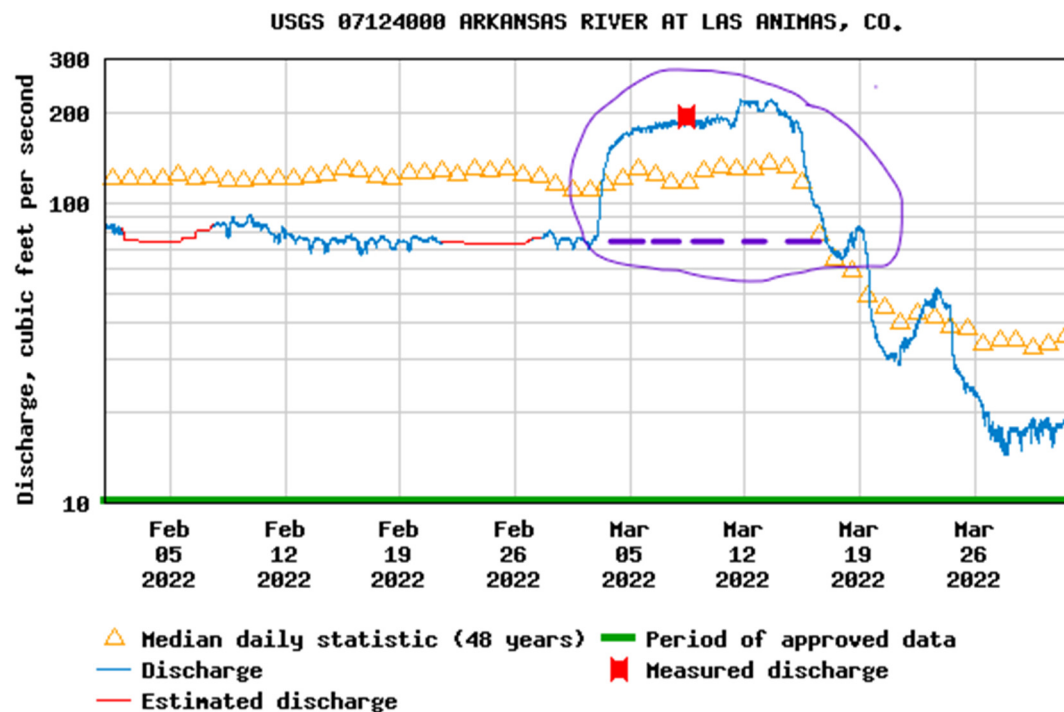


Figure 6 Arkansas River at La Junta flows for February and March 2022 showing operational change of Colorado Canal and the Fort Lyon Storage Canal ceasing diversion allowing that water to be stored in John Martin Reservoir (graphic from CDWR Stations website).



Graph courtesy of the U.S. Geological Survey

Figure 7 Arkansas River at Las Animas flows for February and March 2022 showing operational change of Colorado Canal and the Fort Lyon Storage Canal ceasing diversion allowing that water to be stored in John Martin Reservoir (graphic from USGS website). This water is in the circled flow above the dashed line.

CY2023 PWWSP: Division 2 installed temporary measurement gages on two Consolidated waste ways and on the tail-end of the ditch for a second year to capture the period of November 1st to the 14th. The installation date was earlier than the previous year and the removal date was also extended.

Pass-thru and Status Accounting

A spreadsheet is used to track: river flows; JMAS (John Martin Accounting System) inflows and releases; and Corps JMR evaporation, storage, & releases. The spreadsheet calculates: (a) gaged and ungaged inflows, (b) pass-thru, and (c) the reservoir “status.” The pass-thru represents that amount of JMR inflows which are not stored in any account and are released downstream. The reservoir “status” represents the difference between the amount considered stored in JMAS and the Corps JMR content. This spreadsheet was updated by Garden City Field Office staff and was provided to the OS on November 9th for inclusion in the Operations Secretary’s report.

ARCA Special Engineering Committee

Both States remained active in the Special Engineering Committee (SEC) over the past Compact Year. This included meetings of the SEC and its technical subcommittee. The committee was successful in creating a pilot project for Multi-Purpose Account with an operational plan for such an account.

A Special meeting of ARCA was held on July 1, 2022, in which the resolution *Concerning a Multi-Purpose Account Pilot Project in John Martin Reservoir* was adopted. This begins the period in which the Multi-Purpose account will be evaluated. Technical meetings between staff have continued since and will continue with the primary focus on operations of that new account and resolution of several long-standing issues.

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.

Service Recognition

At the close of this year, two people will retire from Colorado State service that deserve recognition: Phil Reynolds and Bill Tyner. Most may recognize Phil Reynolds from his attendance at ARCA and other meetings. Phil, amongst his many duties, did the accounting for

the many accounts and subaccounts within both John Martin and Trinidad Reservoirs. Phil was also working in the background on tracking water through the Arkansas River system. The work Phil did was necessary to provide each State with the amount of water they can call upon to meet their irrigation needs. Phil was good about answering my many questions and resolving accounting issues as they arose. On rare occasions that involved reworking months of accounting.

Bill Tyner will retire after a short tenure in his latest role for the Colorado Division of Water Resources, Division 2 Engineer. In just the few years he has served in that role he has made his mark. But Bill should be remembered for the remarkable breadth of his service and representation for the Arkansas River Basin. Bill has had input on many of the issues the States have faced over his 26 years with the Colorado Division of Water Resources. I got to know Bill well during dryup inspections for an early lease-fallow project, where there were over 8,400 acres in 439 parcels (~19 acres average parcel size). We spent many days reviewing these parcels, and every night Bill would go home to spend time with his family and every morning meet me to resume our inspections.

Myself, along with other Kansas Division of Water Resources staff, have appreciated the working relationship we have enjoyed with both Phil and Bill. While they will be sorely missed for not only their professional persona, but their wonderful personalities it is satisfying to see two very deserving individuals able to step into their next chapters.

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 CY2022 showing top of conservation storage

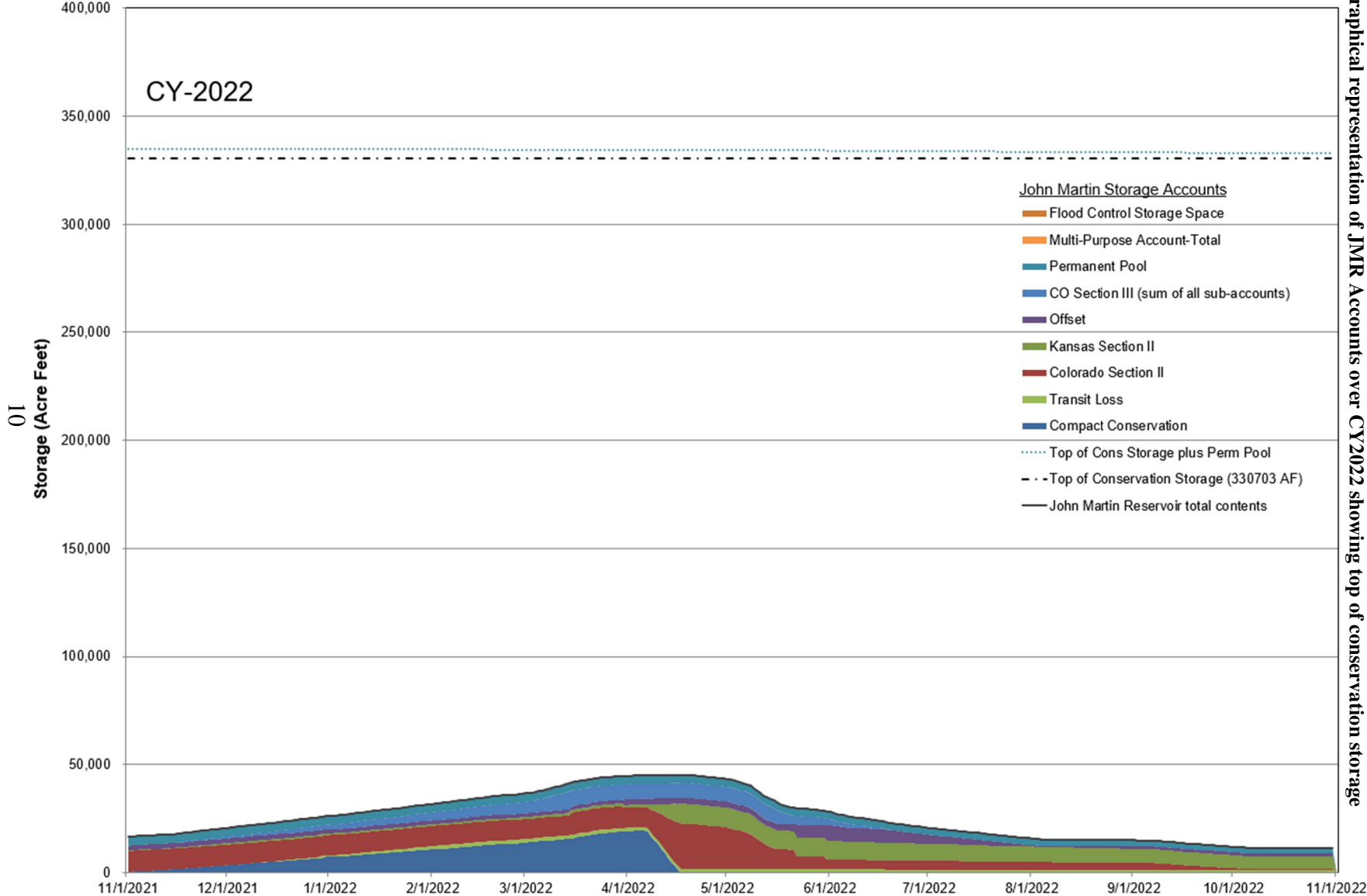


Figure 2 Graphical representation of John Martin Accounts over CY2022

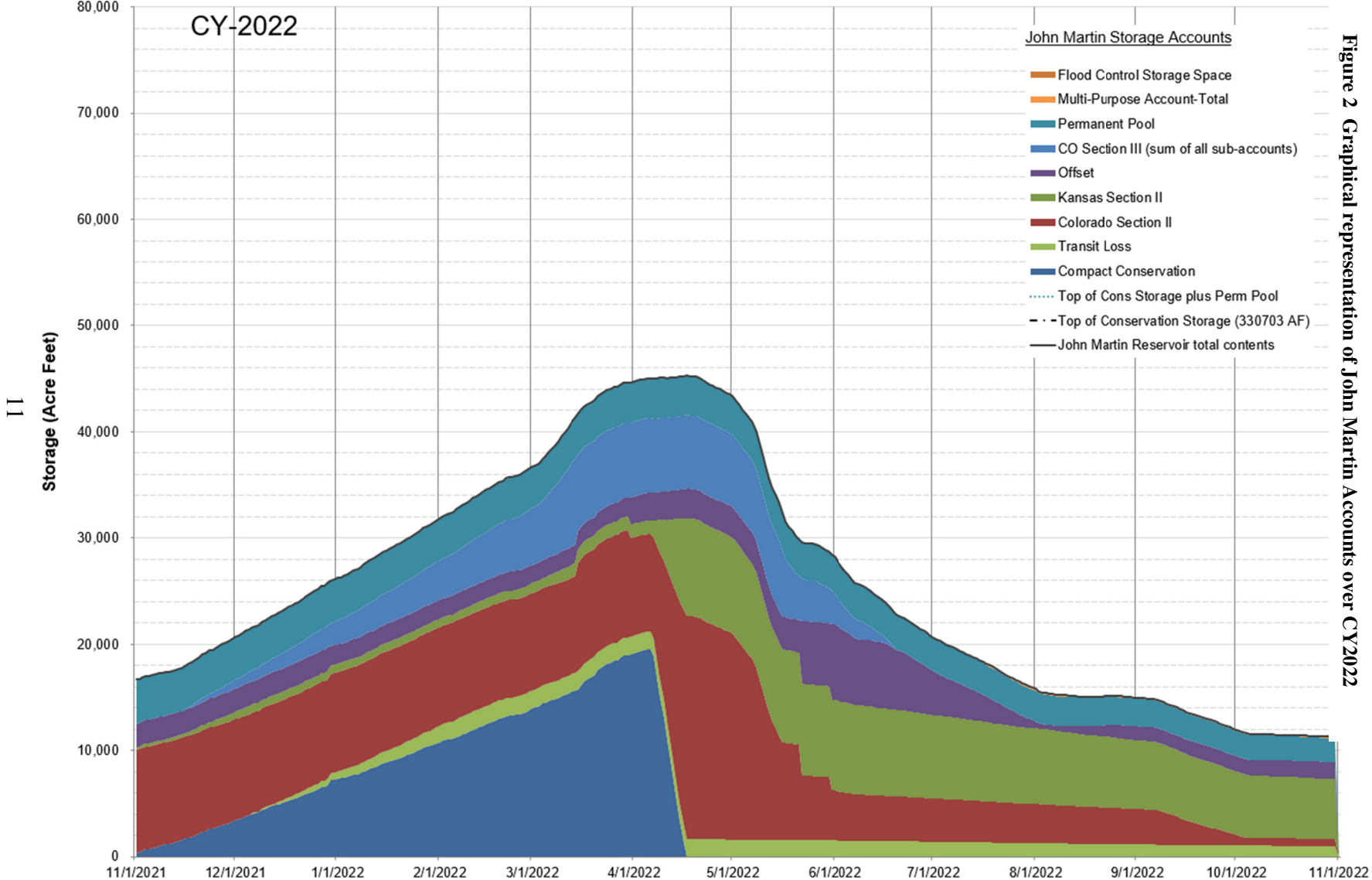


Figure 3 Hydrograph of the Kansas CY2022 First release (5/31-6/9/2022) at the Stateline

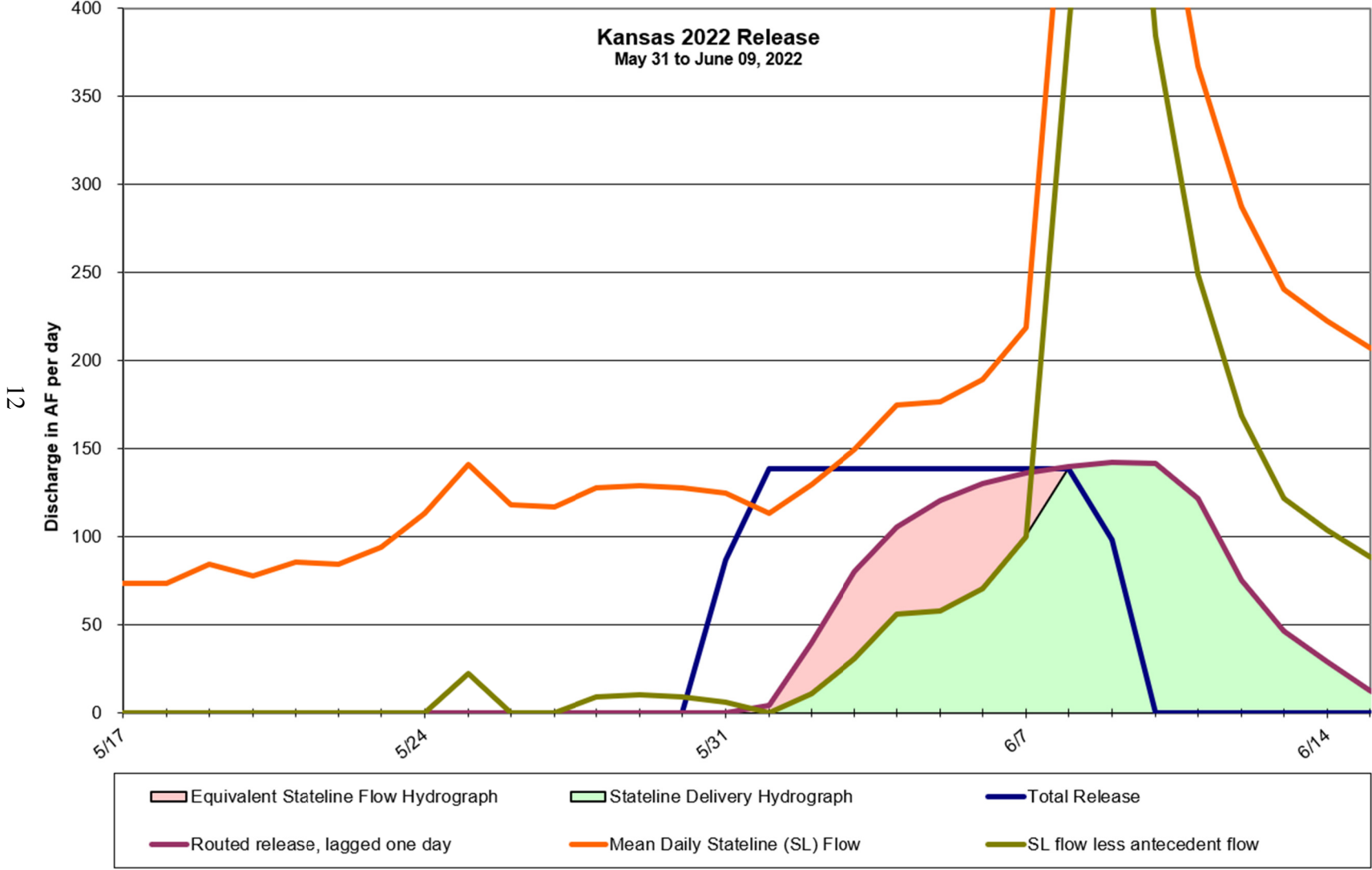


Figure 4 Hydrograph of the Kansas CY2022 Second release (6/17-8/3/2022) at the Stateline

