

# ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado 81052

For Colorado

Chairman and Federal Representative

For Kansas

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

James T. Rizzuto, Swink

David Barfield, Manhattan  
Randy Hayzlett, Lakin  
Troy Dumler, Garden City

December 1, 2019

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

Re: Compact Year 2019 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 Water Issues Matrix.

## Communications

The Operations Secretary, Assistant Operations Secretary, and their respective staff have set a goal of open and frequent communications regarding Arkansas River operational issues to foster a positive, collaborative, and productive working relationship. We continue to work on achieving this goal. General communications are described below and some topics will be addressed in more detail later in the report.

The Operations and Assistant Operation Secretaries met twice, on April 30<sup>th</sup> and November 12<sup>th</sup>. Staff from the Corps and Colorado Parks and Wildlife (CPW) attended the April meeting. The Corps staff provided additional information on how the latest elevation-area-capacity (EAC) tables were generated. We were also able to discuss issues related to the upcoming irrigation season. I would suggest that the Corps and CPW staff be invited to future Spring meetings.

We were also involved in a number of ARCA Special Engineering Committee (SEC) meetings this year. Of the issues that have been directed to the SEC, the focus for this Compact Year was on two issues: use of the Highland Canal water rights as an evaporation replacement source for the John Martin Reservoir (JMR) permanent pool and a proposed Colorado water user's multi-purpose account. More recently, the focus has been on Colorado multi-purpose account.

Besides meetings, 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 release, and runoff conditions within the Arkansas River Basin. Such communication I believe reduces disputes by addressing issues as they arise.

## **John Martin Reservoir**

JMR Stilling Basin: The JMR stilling basin was dewatered and examined for the first time since the reservoir was built. The States and the Corps had monthly conference calls to monitor the progress, other interested parties like the USGS were also included on these calls. I appreciate the Corps efforts to keep us informed and provide pictures to go along with the updates. The work on the stilling basin was completed in time for the start of the irrigation season even with additional unanticipated work that needed to be completed.

I had the opportunity to tour the John Martin Reservoir Dam this November. It reminded me of all the time and effort the Corps puts in to maintain this dam. I don't often think about the efforts behind calling for a release of water stored in John Martin Reservoir and it was a nice reminder. Thanks to the Corps for their efforts.

JMR Elevation-Area-Capacity (EAC): The States have worked for more than a year to implement a fairer way to reallocate storage changes in the reservoir. This discussion started with a comment from account holders that had water and took the majority of any reduction in storage when a new EAC was implemented. The reason for the comment was previously when a new EAC table was implemented, the adjustment for sediment was prorated based on accounts containing water on that day. The account holders didn't feel like that reallocation of storage due to sedimentation accumulation was fair as other accounts that used the reservoir were seemingly unaffected.

The States developed a concept for which first Brent Campbell and then Rachel Duran implemented through a spreadsheet that distributes the storage change based on end of month storage in each account. Using this spreadsheet, two methodologies were developed depending on whether there was a storage gain or reduction resulting from the new EAC. This spreadsheet was reviewed by John Van Oort and Phil Reynolds with the Division 2 office.

On November 1, 2019, the Corps implemented a new EAC table. This new EAC showed a gain in storage at every elevation within the reservoir. This was a result of a more complete survey of the reservoir. See Figure 1 attached.

Previously the EAC tables were based on cross-sectional areas which were replicated with each resurvey. This time there was 3D rendering of JMR using multi-beam sonar for below water and LiDAR for above water surface. My understanding is that there were some areas of the reservoir that was interpolated between the two methods as the boat could not survey water depths less than 7 feet. This way of surveying the reservoir will provide a more detailed understanding of where sedimentation is occurring.

This gain in storage was unexpected and the expectation for the next resurvey is that storage will be reduced. We would appreciate any feedback on how the States agreed to reallocate the change in storage, keeping in mind that the next resurvey will likely result in a decrease in storage, thus a decrease in the accounts. The States will document how the reallocation spreadsheet was used this year and how it would be used with a reduction in storage.

JMR Content: Figure 2 attached provides a graphical representation of JMR and the accounts contained within for CY2019. The maximum end of day content occurred on April 14<sup>th</sup> with 177,068 AF in storage. The minimum end of day content occurred on October 31<sup>st</sup> with 70,389 AF in storage based on the EAC in use at the time.

With the implementation of the new EAC table, JMR content was 73,065 AF at the beginning of day on November 1, 2019, which reflects the gain in storage of 2,676 AF at that elevation due to the resurvey. This storage gain was distributed to the accounts in John Martin Reservoir as shown in the table below.

<b>Adjustments to JMR Main Accounts</b>			
<b>Account</b>	<b>10/31/19 End of Day Content (AF)</b>	<b>Account Increase (AF)</b>	<b>Percent of Increase</b>
Compact Conservation Storage	128.22	145.28	5.4%
Winter Water Account (PWWSP)	0.00	21.85	0.8%
Offset Account	7,708.32	186.06	7.0%
Permanent Pool	7,218.88	150.47	5.6%
CO Section III -- Total	2,548.02	232.69	8.7%
Kansas Section II	47.31	710.89	26.6%
Transit Loss Account	1,563.28	18.10	0.7%
CO Section II Account -- District 67 totals	50,803.91	1,211.24	45.3%
<b>Total</b>	<b>70,017.93</b>	<b>2,676.57</b>	<b>100.0%</b>

## **Kansas Delivery**

Kansas entered the irrigation season (April 1<sup>st</sup>) with approximately 50,097 AF in its Section II account and ended (October 31<sup>st</sup>) with 47 AF. During CY2019, Kansas had one release that will be briefly described below.

A Kansas Section II Account release was started on June 19<sup>th</sup>. Kansas began a concurrent release from the Offset Account from July 9<sup>th</sup>. Releases from both accounts continued uninterrupted until September 9<sup>th</sup>. The release rates from the Kansas Section II and Offset Account varied throughout this run as irrigation demand changed and precipitation occurred. Figure 3 attached is a graphical summary of this release. The Kansas Section II release lasted approximately 82 days and the Offset Account lasted approximately 63 days. The release spreadsheet was reviewed and accepted by both offices to arrive at the final delivery numbers.

## **Pueblo Winter Water Storage Program**

As noted in past reports, the States have committed to continue to work on this issue and will build upon the work that has already been done. Pueblo Winter Water Storage Program (PWWSP) issues have held up approval of the Operations Secretary's annual reports since 2006. We have agreed to exchange some work product by mid-January (2020) and to meet after that exchange.

Colorado and Kansas have tried to visit the Consolidated Ditch to review water being returned to either the Purgatoire River above the Purgatoire River near Las Animas gage or at the tail end of the ditch to the Arkansas River below the USGS Arkansas River at Las Animas gage. These visits were prompted by water found being bypassed around the Arkansas River near Las Animas gage in a previous year(s). During CY2019 Lonnie Spady, Division 2, visited the Consolidated Ditch and found only small amounts of water being returned to the Arkansas River by this ditch. He reported his findings at the November 14, 2018 meeting between the OS and AOS.

CY2020 PWWSP: The Consolidated Ditch was not visited this year as this ditch ceased diversions from the Arkansas River on November 1<sup>st</sup> and hasn't diverted since. Lonnie Spady, Division 2, provided pictures and reported only the seep ditch at the bottom end of the Consolidated Ditch was returning a small amount of water during the OS-AOS meeting of November 12<sup>th</sup>.

Something that occurred in CY2020 that will likely be described in more detail next year is that the Fort Lyon Canal sluiced/sanded their headgate area between November 11<sup>th</sup> and 15<sup>th</sup>. The period of November 1<sup>st</sup> to the 15<sup>th</sup> is used to determine the baseflow which was part of the how the split between Compact Conservation storage and PWWSP is determined between November 15<sup>th</sup> and March 15<sup>th</sup> for water passing through the Arkansas River at Las Animas USGS gage.

## **Pass-thru and Status Accounting**

A spreadsheet is used to track: river flows; JMAS (John Martin Accounting System) inflows and releases; Corps JMR evaporation, storage, and 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 amount shown as stored in JMR by the Corps. This spreadsheet was updated by Garden City Field Office staff.

Last year it was recognized that there were measured inflows from augmentation stations that flow into JMR below the Arkansas River at Las Animas and Purgatoire River near Las Animas USGS gages. The spreadsheet was modified to include these augmentation flows into JMR reduced by the estimated transit loss. That modified pass-thru spreadsheet was provided to the OS on November 15<sup>th</sup> for inclusion in the Operations Secretary’s report.

## **ARCA Special Engineering Committee (SEC)**

Both States were active in the Special Engineering Committee (SEC) over the past Compact Year. Several meetings were held with the primary focus on JMR Permanent Pool and the proposed Colorado multi-purpose account.

JMR Permanent Pool: The authorization of Highland Canal water rights as a source of water to make up evaporation and add to the permanent pool was the focus at the start of this Compact Year. ARCA approved this as a permanent source by resolution at the February 14, 2019 Special Meeting. This was the culmination of many years (decades) of exploring different potential sources and after a few years where this source was operated under pilot project status.

Colorado Multi-purpose Account: SEC is now focused on a proposed new account in JMR for Colorado water users. There are multiple sources and purposes for various entities in Colorado that would like to utilize such an account, if approved. The States are in preliminary discussions on this.

There are other SEC work tasks, including flood spill issues and PWWSP that will likely be addressed in the upcoming Compact Year.

## **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 through the efforts of this Committee and others. An updated Water Issues Matrix was not produced for this report.

## **Summary**

This past Compact Year has offered its challenges. Communication between the States has been valuable to work through issues that arose and to continue to work on those long standing issues. The communication with was equally as valuable when dealing with our federal partners on JMR stilling well inspection, implementation of new EACs, with flow measurements along the Arkansas River, and other issues. I look forward to working with the Operations Secretary and others on the issues set before us in this upcoming year.

Sincerely,



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

Figure 1 JMR storage difference between the November 2013 and November 2019 EAC tables

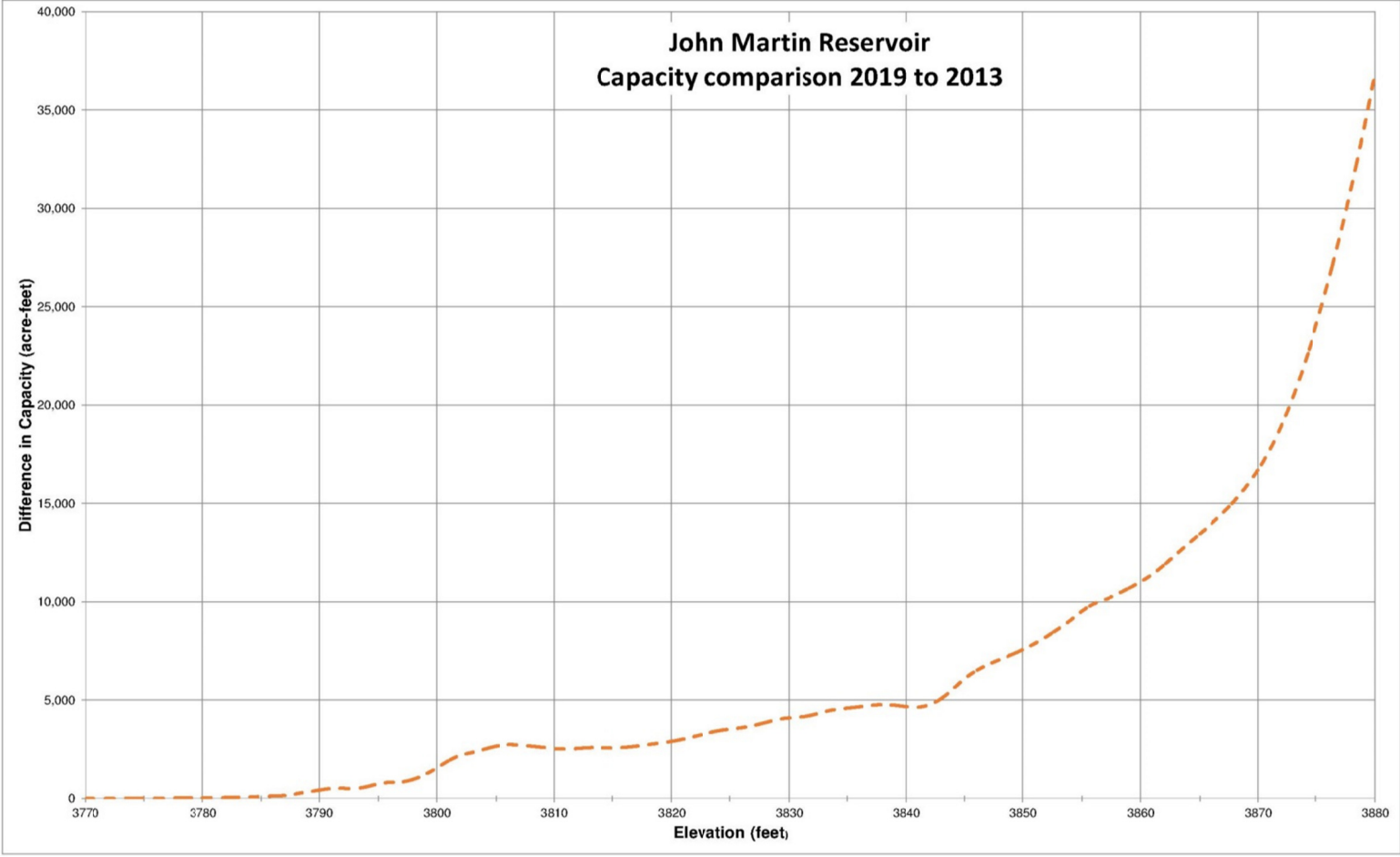


Figure 2 Graphical representation of John Martin Accounts over CY2019

