ARKANSAS RIVER COMPACT ADMINISTRATION

COMPACT YEAR 2021

ANNUAL MEETING

December 9, 2021

HELD AT THE

CLARION INN

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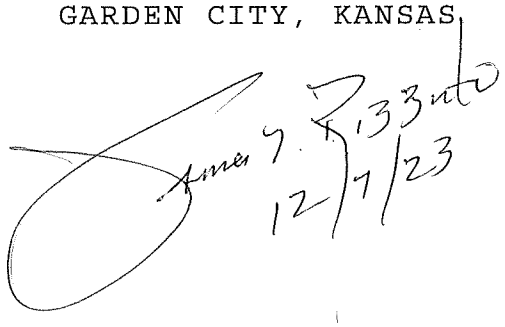
GARDEN CITY, KANSAS



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APPEARANCES

CHAIRMAN:

Jim Rizzuto

COLORADO:

Rebecca Mitchell (Appearing by Zoom)

Lane Malone

Scott Brazil

KANSAS:

Earl Lewis

Randy Hayzlett

Troy Dumler

P R O C E E D I N G S

MR. RIZZUTO: Good morning, everyone, and thank you for your patience as we try and coordinate the virtual piece and the reality piece of today's meeting.

I'd like to call the Arkansas River Compact Administration 2021 Annual Meeting to order at approximately 9:11 Central Standard Time, and we're located in Garden City, Kansas, as well as some will join virtually. We'll try and take a couple breaks during the course of today's meeting and, to those who are on virtually, as well as those that will be presenting today, ask you to speak loudly and clear, so that we can capture what is being said.

If online, please keep video off and stay muted when not speaking. Please be aware that you may be muted if there are distractions and we ask you remain muted until recognized. Zoom has a chat function, as well as a function where you can raise your hand if you want to be recognized or say something.

Attendant list of those that are present, I ask you if you haven't signed it, it's outside the meeting room. I would ask you to sign it and that

list, as well as those who are joining virtually, will become Exhibit A to today's meeting.

So, with that, I'd like to have the representatives for Colorado and Kansas introduce themselves and, if they have staff they'd like to recognize, feel free. So I'll start with Rebecca, if you're on.

MS. MITCHELL: Yes.

MR. RIZZUTO: Okay.

MS. MITCHELL: Thank you, Chairman. This is Rebecca Mitchell, State of Colorado. I'm going to allow the other folks that are in the room to introduce themselves. I know Lane is there and Scott is on his way and I -- there are several staff from Colorado that are also on.

MR. RIZZUTO: Okay. Thank you, Rebecca. Lane?

MR. MALONE: Lane Malone, ARCA rep from Colorado.

MR. RIZZUTO: Where in Colorado?

MR. MALONE: I live between Lamar and Bristol.

MR. RIZZUTO: Got it. Okay. And as mentioned, Scott, we'll let him introduce himself when he gets here. Last we heard, he was in Holcomb

and about 10, 15 minutes away.

Okay. To Kansas, Randy.

MR. HAYZLETT: Well, good morning. Randy Hayzlett. I'm from Lakin. ARCA rep for Kansas.

MR. LEWIS: Thank you, Mr. Chairman. Earl Lewis. I'm the Chief Engineer for the State of Kansas and ARCA rep. I've got a few staff in the room. Chris Beightel works with us in Manhattan. I office in Manhattan, live in Topeka. Our chief counsel, Kenny Titus, is in the back, hiding by the Christmas tree. Rachel Duran, Kevin Salter, and Alex Torrance in our Garden City field office and do the bulk of the work for us on the -- on the Ark River and getting ready for today, so I want to thank them for that work. Also would note Tom Stiles with the Department of Health and Environment and Kurtis Wiard with the Attorney General's office. I know we've got a few folks online but I didn't catch all their names, so we'll just catch them in chat. I think that's all the Kansas agency folks for today.

MR. RIZZUTO: Okay. Thanks.

MR. DUMLER: Troy Dumler, ARCA rep for Kansas here in Garden City.

MR. RIZZUTO: Okay. And I'm Jim Rizzuto,

federal rep, and I hail from Swink, Colorado.

Okay. With that, we'll move on to review and revisions to agenda, and I'll call on Rebecca.

MS. MITCHELL: I have one addition for Agenda Item 11, if we could add the -- a letter recognizing John Van Oort and recognizing his service and a letter to his family, and then also, 11.B would be a recognition of Roy Vaughan's work.

MR. RIZZUTO: Okay. Any opposition to that? Hearing none, we'll consider that as part of the agenda, and that will be Exhibit B.

Next, report from the Vice-Chair and Chair. Randy, beings you're hosting us, I'll let you start off.

MR. HAYZLETT: Well, thank you, Jim. Just want to welcome you all here to Garden City and we're glad that we can do a hybrid meeting. We look forward to the day that we can go back to an all in-person meeting. So, with that, it's good to see the crowd here, so welcome all of you to the meeting.

MR. RIZZUTO: Good. Thanks -- thanks to Kansas for hosting us. It's always a pleasure to come here. The facilities are great and the camaraderie and the evening before the Annual

Meeting is good, as well.

I only have one thing to bring up and it's a recognition or just a statement. Arthur Littleworth, who some people got to know over the course of the Colorado-Kansas lawsuit, he was the Special Master out in California. I know I used to talk about him a lot when I was on the budget committee in the legislature, and I'm sure you all had a lot of conversations about him during the course of that suit, but he recently passed away. He was 98 years old, had a very distinguished career, and just wanted to make note of him in today's meeting. We'll recognize others as we go through the course of today's meeting.

So, with that, we'll move on to reports of federal agencies, and the first one would be the U.S. Geological Survey, Dustin Ethredge, and I believe he's joining us remotely. Dustin.

MR. ETHREDGE: Good morning. Can everybody hear me?

MR. RIZZUTO: Yes.

MR. ETHREDGE: Perfect. Good morning, everybody. Thank you, Mr. Chairman, for allowing me the time to present today on behalf of the USGS. For anyone that doesn't know me, my name is Dustin

Ethredge. I'm a supervisory hydrologic technician with the U.S. Geological Survey in the Pueblo, Colorado field office. Just to also introduce, we have Brandon Forbes on the line. He's a supervisory hydrologist out of our office that oversees a lot of our interpretive studies work on the studies side of our office, but I oversee the surface water monitoring program in the Arkansas River Basin for Colorado and, today, I'll just give you a brief overview highlighting some of the streamflow data collected by the USGS in cooperation with the Ark River Compact Administration in the 2021 Water Year. Next slide, please.

So a lot of you are probably familiar with this general layout, but this slide highlights the location of the streamgages that the USGS operates in cooperation with the ARCA. We operate a total of 10 streamgages, with five of those being located on the mainstem of the Arkansas River. The most upstream of those is located at Las Animas and then, working downstream, we have gages below John Martin Reservoir at Lamar, near Granada, and near Coolidge, Kansas.

We also monitor streamflow on four tributary sites to the Arkansas River, which includes gages on

the Apishapa River, the Purgatoire River, Big Sandy Creek, and Wild Horse Creek. The streamgages on those respective tributaries are located near their respective confluence with the Arkansas River and, finally, we also operate a streamgage on Frontier Ditch, which is located near the western border of Kansas. Next slide, please.

So this slide just shows a brief overview. These are the six sites that the following slides will highlight the hydrographs for, two of those sites being upstream of John Martin Reservoir and are the two major inflows to the reservoir, which would be Las Animas gage and the Purgatoire near Las Animas gage, and then we'll highlight the hydrographs for the four sites downstream of John Martin Reservoir. Next slide, please.

So the graph that you see here and the similar graphs that will be shown on the following slides is a 7-day average streamflow duration hydrograph. You can see here that the Water Year 2021 flows are represented by the black line on the hydrograph, and the explanation box there shows the different streamflow percentile classes, with normal flows being within that 25 to 75% range of normal historic averages and then the oranges and reds represent

flows that are below or much below normal and the blues represent flows that are above or much above normal. And so you can see here that flows for much of the Water Year were hovering around that below normal range with a few jumps into the normal and above normal ranges, particularly during periods over the summer months that were driven by storm events but, for the 2021 Water Year, 93,970 Acre Feet of water flowed past the streamgage, which is 49% of the historical average and 89% of the total volume that flowed past the gage in the 2020 Water Year. Next slide, please.

This is the same type of hydrograph for the Purgatoire River near Las Animas streamgage, and this one, you can tell that flows really through much of the first part of the year were well into the much below normal range and then took a big sudden jump into the normal and above normal ranges as rain storms increased flows through the summer months. In total, 41,770 Acre Feet of water flowed past this gage during the 2021 Water Year, which is 98% of the historical average and significantly higher than 2020, at 538% of the total volume that flowed past in 2020. Next slide, please.

So this is the hydrograph for the Arkansas

River below John Martin streamgage. Flows stayed pretty much within that below to much below normal range for much of the year, with releases through the summer months keeping flows in that normal range. Total, there was 143,400 Acre Feet of water that flowed past this gage in 2021, which is 71% of the historical average and 92% of the total volume that flowed past the gage in 2020. Next slide, please.

So this hydrograph is for the Arkansas River at Lamar streamgage, and flows at this gage actually stayed within the normal range for much of the Water Year. A few short dips into the below normal range but, total, 49,090 Acre Feet of water flowed past this gage during the 2021 Water Year, which is 61% of the historical average for this site and 77% of the total volume that flowed past the gage in the 2020 Water Year. Next slide, please.

So this is the Arkansas River near Granada streamgage and flows at this gage were in the below normal to much below normal range to start the Water Year but then mainly stayed within that normal range, beginning in April and continuing through the rest of the Water Year. 47,570 Acre Feet of water flowed past this gage during the 2021 Water Year,

which is 41% of the historical average and 72% of the total volume that flowed past the gage in 2020. Next slide, please.

This is the last hydrograph that we'll show here. This is for the Arkansas River near Coolidge streamgage, and flows here hovered between the low end of that normal range and into the below normal range for much of the Water Year, with some increases into the normal range through the summer months. 67,840 Acre Feet of water flowed past this gage during the 2021 Water Year, which is 47% of the historical average and 74% of the total volume that flowed past the gage in the 2020 Water Year. Next slide, please.

And then this table just highlights the total volume of flow for the remaining four streamgages that hydrographs weren't shown for. The kind of overarching theme here is that all four of these streamgages, total volume was well below the historical averages seen at these sites. Next slide, please.

So, just to summarize, 2021 Water Year streamflows for the two major inflows to John Martin Reservoir, which were the Arkansas River at Las Animas and the Purgatoire River near Las Animas

streamgages, were 49% and 98% of average, respectively. And then, in comparison to 2020 Water Year streamflows, the total annual flow for the 2021 Water Year was only higher at the Apishapa and Purgatoire near Las Animas gages, with all other gages being lower than their respective 2020 Water Year flow volumes. And, downstream of John Martin Reservoir, mainstem flow at the four Arkansas River streamgages ranged from 41 to 71% of average and was 47% of average at the Coolidge streamgage.

And, with that, that wraps up the USGS's presentation to the Arkansas River Compact Administration and I'm happy to take any questions that folks may have.

MR. RIZZUTO: Thank you, Dustin. Questions of the commission? Doesn't sound like it. Thank you very much, Dustin.

MR. ETHREDGE: Perfect. Thank you.

MR. RIZZUTO: Your presentation will be Exhibit C to today's report.

Next, I'd like to call on U.S. Army Corps of Engineers, Lieutenant Colonel Stevens.

LTC STEVENS: Yes, good morning, microphone check.

MR. RIZZUTO: And, before you start, let

it be noted that Scott Brazil has made it into the meeting. Welcome, Scott, and hopefully your trip was good today. Okay. Colonel Stevens.

LTC STEVENS: Yes, sir. Well, good morning, Mr. Chairman and members of the Arkansas River Compact Administration. I'm Lieutenant Colonel Pat Stevens, the District Commander of the Albuquerque District U.S. Army Corps of Engineers. Thank you for the opportunity to present the key topics from our Basin report on the year, as well as other items of interest.

While the Albuquerque District's water management and civil works responsibilities are five river basins, a significant portion of our activities are focused on the Arkansas. So joining me from the Albuquerque District today, we have Nabil Shafike, the Chief of the Water Management Section; Carlos Aragon, the Arkansas River Basin Manager; Derrick Dunlap, Operations Division Chief; and Mike Martinez, our Civil Works Branch Chief. We also have Chris Gauger, John Martin Project Office Manager, and Kim Falen, the Trinidad Project Office Manager. Slide 2. Thank you.

All right. I'd like to provide an overview of our water management operations, describe some

nonroutine inspections and maintenance completed on John Martin Dam, and highlight some of our -- some of our projects and programs that are occurring within the Arkansas River Basin.

I'll start with an overview of last winter's basin snowpack and spring water supply forecast, followed by a summary of the Corps' Compact Year 2021 water management operations at our Trinidad and John Martin projects. I'll then give a brief overview of our expanded water quality monitoring program at Trinidad and John Martin, present some of our Compact Year 2021 maintenance accomplishments, and highlight some of the capabilities and services available through the Albuquerque District's Emergency Management Operations office. All right. Slide 3, please. Thank you.

The May 1st NRCS water supply forecast estimated the basin-wide snowpack of the Arkansas River Basin to be 76% of the median, the snowmelt runoff forecast ranging from 68% of normal at Trinidad Lake, to 69% of normal for Pueblo Reservoir. Trinidad Lake experienced a March through July inflow volume of 43,300 Acre Feet, which equates to 125% of average. John Martin Dam and Reservoir does not receive a runoff inflow

forecast from NRCS, but Compact Year 2021's observed April through July runoff period inflow totaled 87,000 Acre Feet, which is 51% of the historic 30-year average, based on a period spanning from 1981 to 2010. Slide 4, please. Thank you.

Trinidad Lake started Compact Year 2021 with 15,550 Acre Feet in storage and ended the Compact Year with 20,230 Acre Feet in storage. The total Compact Year inflow for Trinidad Lake was 58,000 Acre Feet. Total Compact Year outflow was right at 50,582 Acre Feet, at which resulted in Trinidad ending the Compact Year higher than it started. The Corps reduced releases from the dam during the May 22 through 23 rainstorm event to prevent downstream flooding, and there were no zebra or quagga mussels detected during the routine monitoring. Slide 5. Thank you.

For John Martin Reservoir, we started Compact Year 2021 with 33,920 Acre Feet in storage and ended the Compact Year with 16,590 Acre Feet in storage. The total Compact Year inflow for John Martin Reservoir was 143,170 Acre Feet, which is 62% of the average Compact Year inflow for the period spanning 1944 through 2021. The Compact Year outflow was 145,410 Acre Feet, resulting in the reservoir ending

Compact Year with -- ending the Compact Year with 17,330 Acre Feet lower than it started. The Corps did not operate for flood control at John Martin Dam and Reservoir during 2021 and there were no zebra or quagga mussels detected during the routine monitoring. Slide 6, please. Thank you.

I now want to talk about a new water quality monitoring program initiated by the Corps during Compact Year 2020. Private staff have been collecting monthly water quality data from our reservoir since 2012 at the locations shown by the green circles.

Staff collects surface measurements of turbidity, pH, and specific conductance, as well as Secchi depth readings -- Secchi depth readings. Data on temperature and dissolved oxygen are collected through vertical profiles through the water column, and zebra and quagga mussels -- mussel monitoring typically occurs through -- from June through October.

Compact Year 2021, the Albuquerque District continued monitoring at riverine water quality stations upstream and downstream of Trinidad Lake and John Martin Reservoir at the locations indicated by the red triangles. These sites have collected

water -- data on water temperature, dissolved oxygen, turbidity, pH, and specific conductance at 15-minute intervals.

Total suspended sediment and sampling of anions and cations is completed monthly at these riverine stations. Monitoring of most of these riverine stations began in July and August of 2020, and this project is currently funded to provide riverine monitoring through 2025. Slide 7, please. Thank you.

These charts illustrate streamflows upstream and downstream of Trinidad Lake -- Trinidad Dam in blue, and specific conductance in black. The specific conductance is a measure of the -- measure of the concentration of dissolved minerals and salts in the river water. The horizontal lines show the maximum values for us that will -- specific conductance that will not reduce crop yields for beans, potatoes, and alfalfa. While the overall levels are similar, there is much less variability in conductivity measurements downstream of the dam. This is likely due to blending of inflow water with existing lake water. Slide 8, please.

These charts illustrate streamflows upstream and downstream of John Martin Dam in blue and

specific conductance in black. Water Year 2021 was an extremely dry year. Measurements indicate that specific conductance levels at higher -- are higher than the crop thresholds for alfalfa, potatoes, and beans for most of the year. Slide 9, please.

For operations and maintenance, the Corps conducted several inspections and maintenance jobs at John Martin Dam during Compact Year 2021. John Martin's project staff troubleshot and repaired sump pumps in the north part of the grouting gallery, which removed seepage water from inside the dam. Project staff also worked with the district teams to collect sediment samples for classification as part of design effort for future upstream dredging.

At Trinidad Dam and Lake, routine annual operation and maintenance was conducted during Compact Year 2021, in addition to constructing heavy equipment shed that houses the new equipment generator. Emergency generator, excuse me. Slide 10, please.

Section 206 of the Water Resources Development Act of 1996 provides authority to USACE for aquatic ecosystem restoration projects in areas unrelated to existing USACE water projects. The proposed project will restore a wetland and bird sanctuary -- and

bird sanctuary formerly -- formerly managed by the Audubon Society. Excuse me. The project site is located along Spring Creek in Colorado Springs, Colorado. During FY 21, it is determined that project has a federal interest which allows USACE and Sponsor to enter into a feasibility cost sharing agreement. The feasibility study is expected to start during Fiscal Year 22. And slide 11, please.

Public Law 84-99 provides the Corps with the authority to assist state and local governments before, during, and after flood events. In the Arkansas River Basin, the Corps works with the State of Colorado Division of Homeland Security and Emergency Management and the Colorado Water Conservation Board to prepare for flood fight activities in years with significant snowpack and spring melt runoff.

Examples of services that the Albuquerque District can provide include hydraulic modeling of burn scar areas and sandbag and flood fight -- flood fight training as illustrated in these photos. Assistance can be obtained by collecting -- or by contacting Albuquerque District Army Corps of Engineers Emergency Management Office at the contact information shown. And slide 12, please.

All right. And this concludes our report. I'd be happy to answer any questions with the assistance of our staff if needed.

MR. RIZZUTO: Thank you, Colonel. Questions from commission members? Hearing none, thank you for your presentation, and -- one question. Would he know whether they're going to do something at John Martin?

MR. HAYZLETT: You might mention it.

MR. RIZZUTO: Lieutenant Colonel, yesterday at one of the meetings, it was brought up about having a 75th celebration, not only Compact, as well as John Martin Reservoir. Is the Corps planning anything as far as the John Martin piece?

LTC STEVENS: We don't have anything concrete right now but we are certainly looking to schedule something for the anniversary.

MR. RIZZUTO: I know a committee was set up and I assume that committee will contact you and coordinate.

LTC STEVENS: Absolutely.

MR. RIZZUTO: Okay.

LTC STEVENS: Thank you, sir.

MR. RIZZUTO: Very good. Thank you again and your presentation will be denoted as Exhibit D

in today's meeting.

Mike Holmberg, U.S. Bureau of Reclamation, as well as Patrick Fischer. I believe they're going to do that in person, or at least part of it.

MR. HOLMBERG: Yes, we'll split it 50-50 today. My name's Mike Holmberg. I'm with the Bureau of Reclamation and I'm going to give a quick update on the Fryingpan-Arkansas, just kind of the day-to-day operations that went on in Water Year 2021, and then I'll turn it over to Patrick Fischer, our Deputy Area Manager, and he's going to give you all an update on the Arkansas Valley Conduit. Next slide, please.

So our imports into the Boustead Tunnel were well below average for Water Year 2021. Imports were just shy of 32,000 Acre Feet. The snowpack in the Arkansas Basin peaked about average, but that peak did occur a few weeks before it generally does, and it did not translate into an average runoff, because of dry soil moisture conditions.

The snowpack in the Colorado River Basin started off average in the fall but, in early December, it dropped off and never really recovered, and then that peak ended up well below average, and I've got some graphs later on to show that.

So that's kind of a look at the entire basin. The Fry-Ark collection system itself, the peak was near normal but, again, it was a little bit lower because of dry soil moisture conditions early in the season. I believe it was 85 to 90% of normal, as opposed to 75 to 80% of normal, for the Colorado Basin as a whole. The collection system opened up on April 20th and then runoff peaked in June and we were finished importing transmountain water by mid-July.

Here's a look at Turquoise Lake for Water Year 2021. So October through about June or January were well below average during the winter months and then it picked up a little bit from February to April while the -- when the spring runoff had just began, and then it dropped off in the summer as we were moving water down from Turquoise down to Twin Lakes.

And so for Twin Lakes, it stayed below average until late summer and then it went up slightly. As I said, we moved some project water down to help with power production at the Mount Elbert Powerplant from Turquoise, so it saw a little bit of an increase there in late summer.

And then Pueblo Reservoir, pretty much the entire year, it hovered kind of right around that

average, a little bit above early and late in the year, and then a little bit below during the spring and early summer.

So our most recent numbers in the project reservoirs, as of November 30th, Turquoise is setting there at 81% of average, the Twin Lakes at about 98% of average, and Pueblo at 109% of average, so kind of goes right along with what we just saw in those graphs.

So looking back at our 2021 forecasts, so every year, the Bureau of Reclamation, we start putting together forecasts as soon as we start getting enough snowpack to kind of start getting an idea of what might be going on, but then we put out official forecasts on the first of the month between -- every month between February and May.

So as you can see, in February, we -- our forecast was showing about 42,000 -- excuse me -- 40,200 Acre Feet we were expecting to import. By March 1st, that had increased to 44,000. By April, we were thinking we might import close to 50,000, and then the snow pretty much stopped, so by May 1st, we were thinking we might import 38,000 Acre Feet, and then our actual imports, like I say, were 31,900, and that's about 80% of our -- of our

forecast. So one thing to keep in mind is we put these forecasts out, but roughly 30 to 35% of our imported transmountain water actually comes in the form of precipitation in the collection system after May 1st, so it's -- it's a difficult target to capture.

So here's a look at the NRCS SNOTEL summary for the 2021 Water Year. This is the Arkansas Basin. The thick dark blue line is Water Year 2021 and, as you can see, the snowpack trace was near average, as far as magnitude, but it was shifted to the left and peaked a little bit earlier than that dark purple line in the median or the yellow average line, and that kind of mimicked more of that 2002 drought year as far as the timing of the snowpack but, thankfully, it didn't match 2002 for the amount. Next slide.

So the -- the timing was similar for the Colorado River Basin but it did fall well short of normal and, again, you can see it was at least better than 2002, but definitely not -- not a very good snowpack year in the Colorado River Basin.

So here's a quick look at the -- the Arkansas Basin into 2022 Water Year so far. Right now, we're setting at about 74% of average in the Arkansas

Basin. It is early so, hopefully, we start seeing a little bit of a turnaround there, and then in the Colorado Basin, it's looking a lot like last year so far and sitting well below average.

For our winter operations, we're currently releasing 13 -- I'm sorry -- 15 CFS of project water from Twin Lakes and 3 CFS of project water from Turquoise. These releases are to reach contractual minimums as releases from those reservoirs, and assuming average snowpack and assuming that we're going to get average imports this next year, we anticipate moving about 25,000 Acre Feet down from the upper reservoirs to make room in them for imported water. Currently, with those 3 CFS and 15 CFS releases, we've brought down about 800 Acre Feet, and that movement of water will be adjusted according to what the snowpack's doing, what our forecasts are showing, and customer needs. So, currently, we don't have any reason to increase it from that minimum flow but, hopefully, we start getting some snowpack up there and we might be able to change that.

So I got a quick update on the basic species, the zebra and quagga mussels, for the Bureau of Reclamation reservoirs. So since the Fiscal Year

2018, Reclamation has -- Reclamation has competed for funding connected to the Department of the Interior's Aquatic Invasive Species Strategic Plan and Aquatic Nuisance Species Program.

Eastern Colorado Area Office had awarded some money to Colorado Parks and Wildlife to a total of $400,000 to help with boat inspections at Eastern Colorado Area Office facilities for Fiscal Year 2019 and 2021, and then Ruedi Reservoir and Pueblo Reservoir have received about $273,000 for on-the-ground improvements at inspection stations since Fiscal Year 2018.

As of November 17th, in 2021 boating season, there have been 21 documented and confirmed mussel interceptions at Ruedi Reservoir and 15 interceptions at Pueblo, so the State of Colorado as a whole has seen an uptick in interceptions each year since 2017. In 2017, there were 26 interceptions; in 2020, there was 100; and then so far in 2021, there have been 180 interceptions. 80% of these boats intercepted can be traced back to originating at Lake Powell.

The $150,000 that is -- ECAO is awarding for Twin and Turquoise Reservoirs this year will be $75,000 each for an on-demand water station for

decontamination. Those systems will maintain the required temperature to kill the zebra and the quagga mussels, and then Pueblo Reservoir is going to get $200,000 for improvements to better control traffic to prevent illegal boat launches and also to allow boats to stay on the water longer.

Between the Colorado-Big Thompson Project, the CBT, and the Fry-Ark Project, Eastern Colorado Area Office has awarded about $2.5 million of ANS funding since 2000 -- or Fiscal Year 2018 and including the newest budget for Fiscal Year 2022.

And that's all I have for the Fryingpan-Arkansas update so, with that, I will turn it over to Patrick Fischer, our Deputy Area Manager, who is joining us on Zoom.

MR. FISCHER: Yes. Thanks, Mike. Good job. Can everybody hear me okay?

MR. RIZZUTO: Yes.

MR. FISCHER: Great. All right. So I'll give you a quick update on the Arkansas Valley Conduit. This project is actually progressing really nicely. We've seen a high level of funding support from Congress since about 2020. Our president's budget request for our Fiscal Year 22 is right around $10 million, and current focus for us

right now is negotiating a conveyance contract with Pueblo Board of Water Works and the Southeastern Colorado Water Conservancy District, which will allow us to proceed with construction of that first leg. You can kind of see it on the -- on the graphic here. We call it the Boone Reach, but it's really the first area where we're going to be able to start constructing the project. Pretty excited about that, and then as far as design goes, we're also focused on advancing final designs all the way down to Rocky Ford. You can kind of see it in the middle of the graphic there.

So, for Reclamation, we're primarily focused on that blue line. That's the trunk line, and then the Southeastern Colorado Water Conservancy District is focusing on the spur and delivery lines. Yeah, exactly. Perfect.

So, with that, that's a pretty quick update, but all positive news. It's been a really good partnership with the District and Pueblo Board of Water Works, and I guess I'd ask, does anybody have any questions?

MR. RIZZUTO: Questions of -- Earl?

MR. LEWIS: Well, and this is, I guess, more somewhat of a comment, as much as a question.

I know the report didn't really talk about the Trinidad review. I know the Bureau of Reclamation has had a role in that in the past and I know that we have had some -- some ongoing questions on that, and I didn't know, I guess there is a question, if you guys are going to participate in that and, if so, how? And, again, we can follow up with specific questions, and it might be too detailed and nuanced for this setting.

MR. RIZZUTO: Okay.

MR. FISCHER: So I think I caught part of that, regarding the Trinidad review, and I think Chris Gnau is on and he's joined us today from our office. Chris, I don't know. Do you have opportunity to shed a little bit of light on that?

MR. GNAU: Thanks, Patrick. I am Chris Gnau. I'm a hydrologist with Bureau of Reclamation in the Eastern Colorado Area Office.

Earl, what we heard last year and this year was that Colorado, the State of Colorado, had volunteered to take the lead in the next Trinidad Ten-Year Review, and that they were working with the State of Kansas on developing some guidelines for how that review process was going to take place. So, I mean, as far as Reclamation's concerned, yes,

we will be involved, but it would be nice if we could get an update, during this Administration meeting, as far as a progress report on what's happened on how those guidelines have developed over the last 12 months.

MR. RIZZUTO: Okay.

MR. FISCHER: Thank you, Chris. Any other questions, either on the Arkansas Valley Conduit? Mike, I don't know if you had additional material. I can turn it back to you, too.

MR. HOLMBERG: No, I have nothing else, so questions for myself or Patrick?

MR. RIZZUTO: To the question as far as updates on guidelines and the like, does anyone have anything? Becky, are you aware of anything?

MS. MITCHELL: Not at this point, Jim.

MR. RIZZUTO: So are they being worked on or are they forthcoming? Just to --

MS. MITCHELL: Yes, they are forthcoming.

MR. RIZZUTO: Okay.

MS. MITCHELL: TBD.

MR. RIZZUTO: Okay. Other questions? None? Mike, Patrick, thank you very much, and your report will be denoted as Exhibit E.

Call on Lee Crowley, he's joining us remotely,

or Harold, National Weather Service, for information. Thank you.

MR. CROWLEY: Can you guys hear me?

MR. RIZZUTO: Yes.

MR. CROWLEY: Yes. Okay. I don't know if you guys are going to be running the -- my presentation or if I am.

MR. SALTER: We should be and, for some reason, I'm not seeing it, Lee, so hold on just a second.

MR. CROWLEY: Okay. Good morning, everyone. I'm Lee Crowley. I'm the senior hydrometeorologist at the Arkansas-Red Basin River Forecast Center in -- in Tulsa. I'm also the water supply forecaster for our office for the Canadian River Basin in New Mexico and the Arkansas River Basin in Colorado. Normally, Tony Anderson is here giving this presentation to you guys each year, but he has moved on to the weather service office in Cheyenne, so I'm filling in for him today. Next slide, please.

So what I'm going to do is just give you a very brief overview of our water supply operations for the Arkansas River in Colorado and then give you a brief overview of the weather in 2021 for eastern

Colorado and surrounding areas and then what we might expect, at least for the first part of 2022, and then I'll be able to take some questions after that. Next slide, please.

So the water supply forecasts from the National Weather Service for the Arkansas Basin are produced by my office, the Arkansas-Red Basin River Forecast Center, and we work very closely with the NRCS and their water supply forecasting. We are the only RFC that still coordinate our forecasts with the NRCS for the Arkansas River Basin, so what that means is their forecast is going to be the same forecast as what our forecast is. Some of the other RFC's along the Rockies are not doing it that way anymore, but we found that we come up with better forecasts if we coordinate them like we have been, so that's something that we'll likely continue to do.

Our forecasts, our water supply forecasts, are derived from the Ensemble Stream Prediction model, or ESP, and we -- we run the ESP, just in general terms, we run it using climatology as a precipitation input, but we also use it with some -- or we can run it with some numerical weather prediction model precipitation input into that, too,

and most of that is through the CFS or Climate Forecast System precipitation forecasts, and those, we get those out to 270 days.

Most of our forecasts, water supply forecasts, are seasonal from April to September, and it's for native runoff volume. We also issue runoff volume forecast that's not native flow for the Arkansas River and Purgatoire River at Las Animas, and that's mostly for inflow into the lake there.

Forecasts are issued the first week of the month from January through June, and I just wanted to note, I'm not sure if you guys are aware of this, but the NRCS is changing this year, this coming year, to using median instead of average to calculate their new normals. Like I said, I don't know if you guys knew that or not, but that is coming, and we -- we've been contemplating doing the same. That's not going to change the actual, you know, Acre Foot -- Acre Feet number that we issue, but it will change the percentages, as far as compared to normal. Next slide, please.

Our observed flows come from USGS gaging stations and the Colorado Department of Water Resources gaging stations and their web pages, and our native flows are calculated with corroboration

with the NRCS and we estimate the effects of the transbasin movement of the water, irrigation, diversions, and so forth, and it's all real simple accounting, so the only diversions that we actually account for in our water supply forecasting are ones that data is readily available to use in the accounting. Next slide, please.

Okay. So this is a map of the Water Year 2021 estimated precipitation, and you can see this is focused kind of over eastern Colorado and, you know, overall, I think for the year, we did pretty well, precipitation-wise, in southeast Colorado for the most part. A lot of that fell in the summer, you know, as thunderstorms and so forth, so that's -- that's different than if it was a really wet, wet winter and we had a huge snowpack, but I just wanted to show you guys this -- this image of the Water Year 2021 to show that overall, it was -- it was a pretty good year, precipitation-wise. Next slide, please.

This is the same image, but this is a percentage of normal so you can see, especially out of the mountains, once you get out into the plains, a lot of areas were -- were above normal for the Water Year and that was mostly attributed, like I

said before, to -- to rainfall in June and July in the summer months. Next slide, please.

This is the last 90 days percent of normal and, obviously, things have changed a lot since the summer months and it's gone really dry again, dry and hot and warm, and that's not what we like to see, but that's what we are experiencing right now. There's some -- some areas that are way below normal for the last three months, like less than 10% of normal, and hopefully -- hopefully, that will change as we go into the winter and the spring. Next slide, please.

So did you go backwards or forwards?

MR. SALTER: Sorry.

MR. CROWLEY: There we go. Okay. So this is the latest drought monitor that I had when I put this presentation together. Obviously, there's been an update this morning and it's -- it's changed. The conditions have degraded a little bit compared to this, but I just wanted to give you kind of an idea of what the -- what the drought monitor is showing, and -- and it's dry. I don't know what else to say, other than that. Next slide, please.

This is a change from last year at the beginning of December, so conditions are better, as

far as drought category-wise, compared to what they were last year. The greens will -- there will be less green if I was able to update this from this morning's drought monitor update, but I still, I just wanted to show that compared to last year at this time, things are slightly better overall, as far as drought classification. Next slide, please.

We just saw this slide, so I'm not really going to talk about this too much. The overall volume was just slightly below normal but the peak was definitely earlier than normal for -- for 2021 for the Arkansas Basin. Next slide, please.

We've already seen this, too, at the last presentation, so I'm not going to stay on this, other than we're -- we're below normal a little bit and we've had another dry fall. So the last two years, we've had dry falls, and that -- that affected the seasonal runoff for the next water supply year and we had another dry fall, so we'll see what happens this year, but there's definitely a trend there. Next slide, please.

Okay. So this is what we're going into, what we might expect coming up. These are the latest seasonal forecasts from the Climate Prediction Center and, as you can see, for December, January

and February, the southern part of Colorado has a slightly increased chance of below normal precipitation for that three-month period, and then the northern part of the state, it looks like that -- that demarcation between equal chances might run right along the Arkansas River exactly. It's really close, but we can say basically north of the Arkansas River, there's equal chances, which means there's no -- there's no nothing in the models, really, that indicate one way or the other; and then temperature-wise, in general, it looks like for the three-month period, it will be slight -- there's an increased chance for it to be above normal, but one thing I'll say about this is that this is very much aligning a forecast, this pattern of above and below normal and precipitation. This is almost a, you know, a perfect example of a La Nina, and one thing about La Ninas is they can be highly variable, so even though the whole three-month period might -- might say warmer than normal, there -- there should be some high variability in cold versus warm and back and forth, but overall, for the whole -- for the whole three months, a slightly increased chance of it being warmer than normal. Can we go to the next slide, please?

This is the same kind of forecast but this is for February, March, and April, so later in the winter and into the spring, and it looks very similar. Like I said before, this is -- this is -- this is very much looks like La Nina, and the difference between this three-month period and the period that we looked at before is that the -- the -- the rainfall, the dryness in the rainfall has inched northward a little bit, and that could just be a product of the seasonality. We're getting into spring and -- and the jet stream moves northward a little bit but, overall, the chances of it being below normal as far as precipitation are -- are increased for the whole three-month period, and for the whole three-month period, the chances of above -- above average temperatures is slightly increased. So that's not great news but, like I said, it's highly vary -- La Ninas are typically highly variable, so it's going to be a lot of cold and a lot of warm, I feel. Next slide, please.

This is just the seasonal drought outlook that was issued, last issued back in November, and it shows that the -- for the next three months, the drought that we're experiencing in Colorado and western Kansas should persist or develop, is what

this is showing. Next slide, please.

That's all I have for you guys. If you guys have any questions for me, I'm -- I'll take them.

MR. RIZZUTO: Okay. Thank you. Any questions? Kevin?

MR. SALTER: If I may, Kevin Salter. Let me go back to a slide here, Lee. I think there's probably several of us in the room that says that looks great for the average precipitation, but that precipitation fell in a short period in May and June of the year and, outside of that time, it was dry.

MR. CROWLEY: Yes, it was.

MR. SALTER: So I think the conditions represent something a lot --

MR. CROWLEY: Very dry.

MR. SALTER: -- different from what this represents, so I don't think I'm saying anything new to -- I'm kind of preaching to the choir here, but --

MR. CROWLEY: Yeah. Yeah, it's -- you know, it looks great as a year, but we all -- we all know overall, it was dry early and dry late.

MR. RIZZUTO: Okay. Other questions of Lee? Thank you, Lee, for participating and your presentation. At this time, we'll take a 10-minute

break and we'll come back at 10:15 and we'll begin with reports from local water users and state agencies.

MR. SALTER: Before everybody gets moving around, for the people online, if you could enter your name and who you're associated with in the chat, I'd appreciate it. Thank you.

(A break was then taken from 10:05 a.m. to 10:16 a.m.)

MR. RIZZUTO: I'm going to call the meeting back to order at 10:18 and we'll start off with reports from local water users and state agencies. First, I'd like to call on Mark Rude, Southwest Kansas Groundwater Management District 3.

MR. RUDE: Thank you very much, Mr. Chairman, both for the earlier conversation and for the time this morning.

My name is Mark Rude. I'm Executive Director of the Southwest Kansas Groundwater Management District. The district was formed in 1976 under the 1972 Groundwater Act in Kansas. Had some very interesting language, I think, there, that the purpose was to recognize the right of local folks to determine their destiny regarding water use, so long as it doesn't conflict with the basic laws and

policies of the state and, presumably, federal as well.

So we formed, at that time, the board, and by the way, of course, that's no small feat to form and organize as local folks, because you essentially look at each other and say "Okay. We're going to charge each other to be," and we've continued to do that every year since.

We cover parts of 12 counties in southwest Kansas, including the river corridor, except for that little bit of river corridor in Hamilton County against the Stateline. So, for example, the Kansas Frontier Ditch is not within the Groundwater Management District yet. I'll just put that out there.

But the issues, of course, that we deal with, and the reason we formed was -- was the water, particularly the groundwater, but the surface water supply, of course, is from the Ark River, and we're blessed with having from Colorado is about the only renewable source, other than what we all pray for, rain, in southwest Kansas, so it's pretty near and dear.

Myself, personally, I came on the scene in 1987, worked for the Chief Engineer and the field

office in Garden City with the State Department of Ag, then Board of Ag, Division of Water Resources, and been on the scene ever since.

I do want to just make a quick comment on a story, because I was involved a little bit with the Kansas-Colorado case and the relationships there, and -- and the Chairman mentioned, at the beginning of the meeting, Arthur Littleworth and the fabulous kind of person that he was, and I remember being in Pasadena at that facility and walking out after a day of activity in court, in his court, and first of all, I loved the way he entered the courtroom. He really enjoyed being announced and then bursting through the -- the curtains and then allowing everybody to proceed with the proceedings.

But we were walking with him out of that facility on a beautiful Pasadena afternoon and sort of -- this is what I remember of him, it sort of illustrates him in my mind, is we just exchanged comments on the beauty of the afternoon outside, being outside, and -- and so he just looked around and he just made the comment, "It's as if the gods have willed it to be beautiful," and that was, you know, one of those comments that if you ever knew him, that was the kind of -- the way he talked.

Let's just put it that way. Wonderful memories of Arthur Littleworth and, of course, a lot of good memories working on Compact and Compact issues and now working, in the last 15 years, with the Groundwater Management District for local folks. Next slide, Kevin.

Just want to make a few brief comments, sort of 5,000 feet. One of the things the District has worked on, and it's sort of in the statute in Kansas, is to -- if you're going to try to manage the supply, let's have some kind of consistency of thought and behavior in a document, and so that's our management program document we've been working to update, and I think we reported that this time last year to the Compact. Next slide.

We're about done with that, by the way, and that has a section specifically on Ark River management. Of course, the Compact is one of several and so, as a groundwater district, we're -- we try to stay involved with both you, the ARCA, as well as with the compact with Oklahoma, from the standpoint of how that might relate in effect to groundwater management. Next slide.

Of course, upstream, we've all talked about, and there were wonderful reports yesterday,

addressing the concerns of the water quality element. Water supply is really two sides of the same water supply coin is quantity and quality. Next slide.

In southwest Kansas, we're sort of functioning now as a closed basin, so in that watershed on the previous slide, that was a map involved in the discussions of the development of Compact down to Dodge City. We rarely have the flows in Dodge City, and when I came on the scene in '87, we were having flows through Dodge City, and it was just one of those periods of time where it was extra wet, the system was wet, and we were all enjoying a water supply.

Those kind of pass-through flows are something that happened a lot more often before the reservoir development upstream, of course, so a lot of benefits from that reservoir development, but there are also some -- some other effects, and one of those is we don't have near the pass-through water we used to have, historically. We are functioning as a closed basin, so everything that is sent to us down the river stays with us and essentially goes right into the High Plains Aquifer. Next slide.

We've been very involved with partnering on

water conservation projects, working with the ditch companies to update diversion works, and improving efficiencies on their system. Next slide.

Also working with partners in the state to update our regional groundwater modeling. Kansas Geological Survey is a fabulous partner in that regard and we're just initiating an update of that model. Next slide.

Some comments yesterday on the Decision Support -- I think I have that, whatever the report yesterday that was provided on the Decision Support System for the Ark Valley. Online, I noticed there's a water quality element, certainly, there. It makes sense, since water quality is a part of water supply. Some intricacies that were described at length yesterday in the -- both existing data and the created data to -- to fill the level of detail that is going into that amazing work, even to the point of trying to identify the different colors of water historically delivered to the various locations along the Ark River system.

Just want to make the comment that as -- as we all are -- as that effort is looking at the different colors, certainly we would be interested and we think all water users would have a real

interest in the quality of those different colors, and so if we're -- if that effort is going into providing the much needed common knowledge base for the river basin, we certainly want to encourage that kind of thinking. Next slide.

The watershed planning that Colorado has undertaken, one in for the full basin in 2008, and then the most recent one from John Martin downstream, that's a great document and -- and, certainly, we're learning from that. I would have to say that was, the 2008 and then the most recent one, is really driving us to file for a WaterSMART grant with Reclamation to form a watershed group, which we did receive that grant. We're sort of waiting on the contract, but we look forward to following Colorado's lead in putting together a watershed group to try to address the opportunities and issues on our side of the basin. Next slide.

From the presentations yesterday and from what we're hearing, both in the Lower Ark Water Conservancy District and others, tremendous work, and I want to say thank you for the efforts that are being put into the volunteer best management practice efforts to try to improve the water quality in the basin, and as was, I think, described in the

report yesterday, it -- again, there are tradeoffs, and I think that's the Rule 10 activity is sort of trying to manage the tradeoffs. If a producer puts the improvements onto his land and with his irrigation system, he kind of wants to have the benefits of maybe more water, and we get that with our producers on our side of the line, too, but somehow, we have just got to address the water quality, and what's going on there and was described yesterday is, I think, deserves a real thank you for the efforts that are going on there collectively. Next slide.

But the system is what it is, and so the quality that we receive, as I said earlier, continues to affect the regional High Plains Aquifer and, therefore, the well fields of communities, and we just learned that the City of Deerfield now has exceeded their clean drinking water standards for uranium and other constituents and their solution now is to tie in with the Lakin water treatment system and that's, you know, that's predictable. Certainly Colorado has, on Colorado's side of the line with the Ark Valley Conduit, is making real efforts to keep the drinking water clean, and we're just going to have to regionalize on the Kansas side

as well. Next slide.

Another thing that's sort of evident in the West, any place we have a lot of agriculture and water short supplies, we tend to have the water quality effect, and so I really appreciate being able to work with Reclamation folks and looking to other research, even globally, on ways to treat that ag water in a economical way that could keep that water useable for agriculture.

There's certainly examples now in southwest Kansas, and there's got to be in Colorado as well, where that water is very limited now in what crops can be grown, so any way we can find to treat that water and restore. Of course, there's costs like, for instance, microfiltration. You end up with a permeate that has to be disposed of, even if there's radio nuclei in that, then there's only -- for Kansas, anyway, we've got to deep inject it and that equates to 15% out of the system, so there's a water cost as well as a financial cost on some of those options, but we've just got to keep looking at those and, I hope, collaborating with our partners in the basin in Colorado as well. Next slide.

So we have, of course, Compact conditions there. I heard the comment yesterday that it's a

water quantity, not a quality Compact, but as we said last year, boy, the language is not that limiting in the Compact, and we all know that. It's not something to focus on. The good work that's happening to improve the water quality really is what to focus on and collaborate on and work together on, so we are -- we are excited for that and we want to keep working on that as a district, working with other partners, and we're even going so far as to be a little bit wild on trying to find ways to import water into the basin, and I don't know that we'll get there, but the water west concept is just another thing that we need to keep looking at for areas that are water short and for our good friends to the west. So, next slide, Kevin.

So, with that, that's all I have this morning unless there are questions.

MR. RIZZUTO: Questions? Did a good job. Thank you, Mark. Steve Kastner, Purgatoire River Water Conservancy District. Steve.

MR. KASTNER: Thank you, Chairman Rizzuto. I am Steve Kastner, General Manager of the Purgatoire River Water Conservancy District. If there's any confusion, I am here in reality.

Before I start, I'll acknowledge Gil Ramirez is here from the City of Trinidad. Gil is one of our partners down there. He operates the City's collection and treatment system on the upper -- very upper reaches of the Purgatoire. The City, like I said, is very acute aware of what the District does, and we try to work together for our mutual benefit.

I was going to present some information today about the internal operations of the District in the past year. A lot of this information gets discussed in our project annual meeting we had November 5th, a month ago, in Trinidad. Federal agencies attend, the two states' water resources offices, Kevin and Rachel, attend, and we do that every year and I think it's a -- it's a means of collecting data and recording data. We record notes and minutes of it and so, when we do get to the Ten-Year Review process that was brought up a little while ago, no matter who does it, I think this time, we'll have readily the data needed to conduct that process.

So, with that introduction, we did have a, what I'd say, a nice year, a good year of this year. That's my usual graph. The last bar on the right is what we did this year. Total diversions were a little over 41,000 Acre Feet. Our average, our

long-term average there in those bars, is right above 40,000, so we're just a hair above average on our diversion supply, and most of that occurred during our -- what we call our project operation method of distributing our water. I don't know if you can -- I think I just kind of said whatever the next few lines there, Kevin. We can scroll -- can you scroll down a little, or is that --

MR. SALTER: I scrolled by it.

MR. KASTNER: Oh, I'm sorry. So, yeah, I said that. This next graph is kind of a comparison of our -- the red dash line, it really should probably be a bar graph, but it's just what was diverted through irrigation during those months. You can see it starts out in April and climbs and, by the time you got to June, July, August, it's pretty steady. We had -- that's unusual, but we had a good supply, and a good supply in storage due to the precipitation in May and June this year and a little bit in August, so we were able to hold kind of a constant supply during the summer, which is a good thing, but somewhat unusual for us.

The blue -- the blue line is our monthly end-of-month Model Pool content and you can see it stores up gently all winter and the May and June

precipitation and the satisfaction of water rights senior to 1908 on the Lower Purgatoire and Lower Arkansas was met, so we were able to store, and our peak storage content at the end of -- or at the first week of June was 16,200. Doesn't quite get that high on this graph because it was the end of the month numbers there, but -- and we were also able to store it, it doesn't really reflect on there, but another thousand Acre Feet first week of August.

Then that -- then that mountain storage was down, so the graph goes down, but that -- that level of storage really makes a difference to the district and it goes -- takes us from a dry year to a real good year, so we had a nice -- it was a nice relief from 2020, which was a really dry. Next one, Kevin, if you've got it.

This graph I show is kind of the blue line is the Purgatoire at Trinidad gage that's right at the start of our diversion ditches and the red line is Thatcher below the District, and my opinion of this gage is -- or this chart has changed in the last three years. I'll show you on the next chart, but I think it's still useful, but when the -- when the red lines and the blue lines are further apart,

especially the red line lower, it indicates a lack of monsoonal moisture. You can see that in 2019, when the lines were pretty far apart. This year, the flow passed the gages where the horizontal lines are the longer term average, and so our flows past the gages were pretty -- pretty much normal this year.

And the next graph, I just wanted to point this out. This is -- the blue line is the Madrid gage above Trinidad Reservoir. You can see the peaks and some of the precipitation that occurred above the reservoir in the spring has been shown today already, but the Thatcher peaks, the red ones, are you can see independent of what goes on at Madrid, and those -- and much higher, and those flows occur, as I observed, when the storm systems come up and back up against the Fisher Peak and the mesas there south of town, and -- and they're higher. They're very spiky, and if you -- I looked at the volume of water in those two peaks, and they are -- the total past the Thatcher gage for the year was 44,000, as it showed on the last slide, but those -- the volume in those two peaks were 16,000 and 10,000 Acre Feet, so over half the annual supply going past that gage occurred in a two-week period.

I think about that in terms of future modeling, and when the modelers talk about calibrating a model and calibrating this diversions and streamgage flows, you have two, I guess I'd call them random events, that are volumetrically very significant, and I guess I would just be interested in how -- how that kind of thing is -- is dealt with and to what degree it will mean something in our -- our future review. What it's -- it's nothing the District operations did and it's nothing about a water supply coming into the District from above, so it's -- it's interesting, but it's something to keep an eye on. Next one, Kevin.

This is a chart of our -- this is the amount of acres we irrigate in the District. We include acres that have been dried up and are changed from irrigation to municipal or Permanent Pool uses, which are the red components there. We have 2020, which was a drought year. We don't have a compilation for 2021 yet. That will be coming in February, so 2020 shows a slight decline. What it doesn't reflect is that the quality of the irrigation in 2020 wasn't good. We -- you know, people were spreading it on a similar number of acres, but the quality wasn't as good. We're

allowed to irrigate 19,499 by the Operating Principles, so we're -- we don't push that. It's -- we just don't have the water for it, typically.

A few more notes on the next page. There's our -- our sprinkler plan, our irrigation improvement plan numbers. I put a little chart there or a little table. We're slowly growing the number of sprinklers. I personally don't know how many more we'll get. We have a lot of land but it's not all suitable for sprinklers. We have 20, 22 listed there. Actually, only 19 operated this year, but anyway, it's slowly going up, and it seems to be a process that works. We had 75 Acre Feet of actual return flow deficits to replace to the river. That was done by direct releases from ditch systems or -- and from Trinidad Reservoir itself.

Livestock diversions this year, or the past winter, were 728 Acre Feet. We tried a little different last winter. We tried to rely more on direct river flows, the small amount of water that's in the river in the winter and running it longer in ditches, just to try to save storage water. It didn't work very well. There just wasn't enough water to get down the ditches. It's like five CFS or something like that. We're running stock water

right now but, at 25 CFS, it's more efficient. We're allowed 1200 Acre Feet a year on stock water diversions.

The next topic there, automatic ditch head gates. We have plans to install automatic gates on our three largest ditches, the Hoehne, the Model, and the Southside. We're doing this because they're -- those ditches or those gates allow for remote control on your cell phone and they can maintain a constant flow as against river changes. That's -- those gates are being funded by a 50% Bureau WaterSMART grant, District funds, ditch funds, and our local conservation district is also providing funds.

It will be kind of an experiment. We'll see how they work. If they work well, I'd like to have more of them, ultimately control the whole district on the phone. We're still debating who should have that control, but we're hopeful. We're -- they're -- those gates are made in Australia, brings in the supply chain issues, but we're told that hopefully early March, they'll be here, and hopefully we can get them in before April and irrigation season.

Lastly, appreciation to the Corps for their

work every day in operations at the reservoir and the dam. And, Division 2 staff, we did support our sprinkler plan and just our daily administration and, on that line, I would like to acknowledge John Van Oort, also. John created some spreadsheets which are used to keep the reservoir in balance where it should be, relative to all the other water rights, and he also held daily meetings in the summer with his staff to make sure the Purgatoire's and administrative coordination with the Lower Arkansas and the ditches on the Lower Purgatoire, and John was very dedicated to his job and -- and we're certainly going to miss him in the future.

That's my report, Mr. Chairman.

MR. RIZZUTO: Okay. Thank you.

MR. KASTNER: Any questions?

MR. RIZZUTO: Thank you, Steve. Questions of Steve? Earl?

MR. LEWIS: Thank you, Mr. Chairman. Just one, more curiosity. We were talking about the two different graphs, the one that you maybe thought wasn't as useful as you used to, after the last three years, because of maybe the episodic inflow or flow events. Have you looked at whether that you're seeing more of those high flow events than

historical or are we seeing a change in the -- in the flow pattern or do you -- do you know that yet?

MR. KASTNER: You know, I've just noticed it the last -- 2019, the monsoon was just notably absent. A little bit better last year, and then just those two large events this year that people have talked about, but I haven't gone back and specifically looked.

MR. LEWIS: Okay. Thank you.

MR. RIZZUTO: Okay. Other questions? I have one. On the automatic head gates, has any other conservancy district or ditch company gone to automatic head gates and, if so, what's been the result?

MR. KASTNER: They're from the company called Rubicon. They have an office in Fort Collins. The only one in the Arkansas I specifically know of is on the Fort Lyon, and I did speak with those people before we went too far in this, and they've -- they've been pleased. It's -- it's kind of a wait and see. We're going to put them below our existing head gates and leave our existing head gates as protection for, you know, debris and high water and stuff and -- 'cause these -- these gates let the water through and they

measure it as it goes through and they control all at the same time, and so we wanted to keep protection of them, but the salesman says they're great.

MR. RIZZUTO: That's what they told me about my car. Okay. Thanks, Steve.

Kansas Geological Survey, Don Whittemore, and he'll be joining us remotely.

MR. WHITTEMORE: Can you hear me?

MR. RIZZUTO: Yes.

MR. WHITTEMORE: So there will be a slide show here.

MR. SALTER: Hold on here a second, Don. I'm working on that.

MR. WHITTEMORE: Looks likes you have a beautiful sunny day out there.

MR. RIZZUTO: It is nice, although most of us have been in this room, so not sure if the sun's still out.

MR. WHITTEMORE: Okay. All right. Well, greetings to the Chairman and to the ARCA members and the attendees. So the Kansas Geological Survey has been working on this salinity issue in southwest Kansas for almost the last three decades. For this present presentation, I might mention that we are

also working with the Kansas Department of Health and Environment and also Groundwater Management District Number 3, especially Mark Rude. So, next slide.

Now, the -- and you might notice that I pronounce it the Ar-Kansas, so I think maybe in the interest of Colorado, I'll simply call it "the Ark."

So, for the Ark River, one of the most saline rivers in the United States, entering Kansas, we see that the source of salinity, selenium and uranium, is mainly natural, so we have the weathering of the marine cretaceous shales that contain gypsum and sulfites, and the anthropogenic sources really are insignificant in comparison to those natural sources. However, the level of the salinity is really not natural, because the dissolved salts are concentrated so much by the loss of water from evapotranspiration.

Now, also, if we look at the uranium, we recognize there is an anthropogenic reason for accelerating the release of the uranium, as indicated by the Colorado studies, indicating that the fertilizer, the nitrate fertilizer, the nitrogen fertilizer then the nitrate, goes down and can help weather away faster some of the uranium from the

shales. The weathered shales oxidize the uranium, but overall then, in terms of the natural, if we didn't have these human activities, the salinity would probably be about three to four times less and the uranium somewhat less. Next slide.

So you've seen this before. Mark Rude showed this. We see that the saline waters and the ditch waters in Colorado have indeed impacted the uranium concentration in the groundwater in Colorado, so this is a map of the probability of uranium exceeding the public drinking water supply, which is 30 micrograms per liter, in the groundwater in the Ark River Basin. Next slide.

So, give you an overview of the water that enters Kansas. On average, the total dissolved solids is over 3,000 milligrams per liter, and this is a sulfate-type water, not a chloride, and the sulfate is close to 2,000 milligrams per liter and, based on a study in 2009 and 2010 on uranium, found that the uranium, on average, was about twice the drinking water standard.

And, for example, to give you a perspective on this last year, 2021, calendar year 2021, based on specific conductance to uranium relationship, the uranium concentration coming across the Stateline

was well over a 30-microgram per liter standard most all of the time, except during the Compact release to Kansas, when it was close to the drinking water standard, and then the only times, really, when it was significantly below would have been, you know, the day or two when we had those thunderstorm releases, which were shown very nicely in the previous slide. Next slide.

I meant the Purgatoire presentation showed those peaks, and that was a very nice -- showing the importance of those rainstorm events.

So, back in some of the earlier studies, we produced a map. Here, I'm showing the 2000 map, and this is for the High Plains Aquifer. We also have one for the Alluvial Aquifer. If we showed the Alluvial Aquifer map, we'd show maybe a red zone coming through that, what's white here, because that's the Alluvial Aquifer in Hamilton and western Kearny County, so that's even higher in the Alluvial Aquifer than in the High Plains Aquifer, but the sulfate concentration, an indicator of the salinity, is indeed high in that zone of Kearny and Finney County, your west of Garden City up to Garden City, and you see that it goes away from the river, and if we go to the next slide, we can see why it does

that.

It's because we have the historic ditch irrigation service areas in Kearny and Finney County that distributed the water for the last century or so away from the river and the ditches.

And now if we go to the next slide, in between that particular period of the 2000 map and then the current study, the Kansas Geological Survey worked with Groundwater Management District Number 3 looking at the salinity of the water and also the uranium concentration, and saw that the uranium concentration was high in some of the High Plains Aquifer waters and then began to see that issue that, again, Mark Rude pointed out the Lakin having to put in the treatment system. Also, Garden City has a treatment system to reduce the salinity, which also decreases the uranium, and recognizing that, then the Kansas Department of Health and Environment saw that probably the private domestic wells out in that area would have potentially uranium above the drinking water standard as well, so they conducted a voluntary sampling and analysis program in the fall of 2019.

Then, in the current study, the Kansas Geological Survey, in cooperation with the Kansas

Department of Health and Environment and Groundwater Management District Number 3, were working on the salinity and uranium distribution in the aquifer, including the factors that control this. Next slide.

So the current study objectives are shown here, where we're looking at the distributions of salinity, uranium, and other constituents in the High Plains Aquifer, as well as in the Alluvial Aquifer, and then determining the changes and then the chemical loads in the river coming into the study area, and then the various factors that control the chemical distributions from geographic to vertical lithologic to hydrogeochemical. Next slide.

So we're continuing to work on updating maps. This is a preliminary map, and I think the key thing here is that we've had to add a new zone in the High Plains Aquifer to this map, a zone of over 1500 milligrams per liter sulfate, because the sulfate concentrations have continued to increase, as you can imagine. As you can imagine, as Mark Rude indicated, this is a closed basin, so what we get pretty much stays here. Next slide.

This is a blowup of that. You see the Ark

River, that light blue line, and you see some thin black lines paralleling the river. Those are the boundaries of the Alluvial Aquifer, and we have Kearny County, part of Kearny County in the left and part of Finney County on the right, and you can see this high concentration of sulfate in the High Plains Aquifer, above 1500 milligrams per liter as well as above 1,000, which is kind of that orange shade. We see that that high sulfate is both to the north and to the south of the river. Next slide, please.

But, here, we see sort of a similar area, but mainly in eastern Kearny County, with a little bit of Finney on the right-hand side of the slide. We see that the uranium in this map that we're currently working on is over 50 micrograms per liter, and remember that 30 micrograms per liter is the limit for the public supplies of drinking water. Note that this is primarily on the north side of the river, where I mentioned that we have sulfate. Also on the south side of the river, high. We see that we really don't have as much high area of the uranium to the south. Next slide.

We discovered a new area in this project of high salinity and high uranium concentrations, and

that's that zone that goes from a -- just east of Garden City. You see that GC. That represents roughly where Garden City is located, and it goes in a north-northwest direction along what is known on the US Geological Survey topo maps as the White Woman Basin.

So this is a depression. So what looks as like might have happened is that we've had the ditch irrigation area and then we've had maybe some flushing of that water across the surface or runoff of that and then seepage of that during the last century into the subsurface, causing that particular zone to be especially high in uranium. Next slide.

This gives you an idea of what we're following in terms of uranium loads coming across the Stateline. We've produced this for the Groundwater Management District Number 3 here each year since 2012, and we see how high the mean annual uranium concentrations can get, over 70 micrograms per liter, but when we have more flow, then it's a lower concentration.

So if you look at the load, you'll see that even though the periods of the low flows have much higher concentrations of uranium, in terms of the load of uranium that comes into this particular area

and then eventually makes its way into the Alluvial and High Plains Aquifer, is mainly during those high flow years when that saline water with the high uranium is flushed from Colorado into Kansas. Next slide.

This is the graph of the uranium concentration, Y axis, to the sulfate on the X axis. The blue line is a linear fit to the Arkansas -- the Ark River water, so that gives you kind of a reference point, and we can see we have waters, the groundwaters, that are both higher and lower in uranium at a given sulfate concentration. You can also see, in this recent study, those are the purple pluses, I guess for KSU color, if you go over 100 micrograms per liter.

Now, you might wonder, well, why do we have such a big distribution like this? Well, we have, in certain areas, some additional background uranium that comes from a leaching, perhaps some of the volcanic ashes in the High Plains Aquifer, and then we have an area to the south of the river where we have groundwater levels that are generally lower than to the north, so it's a greater travel time down through that unsaturated zone through the water table.

Then also that groundwater flows from the river, mainly now to a southerly direction, because of the great decrease in water levels in the High Plains Aquifer to the south, so that combined factors result in lower uranium concentrations to the south of the river, and we can see that if we look at the next slide, where I have the uranium over sulfate ratio plotted versus the sulfate concentration, and then we see we've got a power fit to the values that are north of the river and then also one to the south of the river.

You can see the cluster of points for the Ark River. Those are the X's, the blue X's, and then we've got the pluses, the wells north of the river, and then the dots, which are the wells south of the river, and we can see a marked difference between those wells that are to the north of the river and to the south of the river, we look at the fit of the data. So, again, we have this issue of having combined greater background to the north than the south.

We've got, then, absorption of uranium as it travels greater distances through the unsaturated zone in the south, both, and then also the flow of the water within the aquifer to the south. So those

particular processes are then affecting the uranium, so it's not all one simple issue. We have to really look at some of these lithologic factors and the groundwater factors, the hydrologic factors and the geochemical factors, to see how it's distributed.

Now, you notice the diamonds, the purple diamonds, which represent the White Woman Bottoms wells. We see those are especially high at the high sulfate concentrations and, again, even higher than the river but, again, this may have some implications for Colorado as well. In other words, what might be happening is, again, we have the ditch irrigation and we have some of the flushing of water maybe during rainstorms, as well as maybe some of the runoff of that, and then perhaps precipitation of gypsum in some of the soils, and therefore, that would lower the sulfate concentration, whereas the uranium can stay in solution because it's complexed with carbonate species and so, therefore, that can then increase the uranium sulfate concentration at a ratio and produce those at a very high values for that White Woman Bottoms wells area. Next slide.

So this reviews, then, the current findings. We'll be producing a report at the end of -- end of June this next year. We see the sulfate

concentration has increased, relative to 2000. The high uranium areas are within the high sulfate areas. However, the largest areas of the high uranium, which are in east central Kearny County, are north of the river; whereas the high sulfate is also to the south of the river. The uranium greater than 50 micrograms per liter also occurs along this White Woman Bottoms depression in Finney County.

Then we see the controls on the uranium and the groundwater include the proximity to these features where the saline water is present, the river channel ditch and ditch irrigated areas, the background concentration, the adsorption on sediments, which are dependent on the depth to the water table, and as well as the aquifer travel distance and the aquifer lithology.

Now, also one additional thing, and that is well construction. If, as in the past, the wells were constructed so that they have a gravel pack going all the way down through and there was no seal in the annular space, then it's easier for that saline water to travel all the way down to the actual screened interval when -- especially when the well is pumping.

Those wells that are grounded or sealed across

clay units help protect some of the water in the lowest part of the aquifer. Indeed, we find the great heterogeneity in the concentrations of uranium and salinity in some of these waters because some of these wells have then been sealed better than others, preserving some of the better quality water in the bottom of the aquifer. Next slide.

So that concludes the study and, again, really express my appreciation to the Department of Health and Environment and to Groundwater Management District Number 3 and their cooperation on this.

MR. RIZZUTO: Okay. Thank you, Don. Questions for Don? Okay. None? Thanks again, Don.

MR. WHITTEMORE: You're welcome.

MR. RIZZUTO: Kansas Department of Health and Environment, Tom Stiles. Welcome.

MR. STILES: Thank you, Mr. Chair. Thank you, Administration, to allow a few minutes to make some comments. I don't have a real presentation, but just some observations.

I'm Tom Stiles. I'm Director of Bureau of Water for Kansas Department of Health and Environment. We're in charge of implementing the Clean Water Act and the Safe Drinking Water Act. When it's come to the ARCA and the Compact, we've

always had somewhat of an adjunct role, basically advising the Chief Engineer on some aspects of it, but water quality really hasn't been embedded in that, and yet ironically, yesterday during the committee meetings, I think I heard water quality mentioned more often than any time in history here in -- in the ARCA proceedings there.

It is, as you've seen from the presentations and the dialogue yesterday, it's clearly a bistate issue but, more importantly, it's a nonpoint source issue, and what that means is that for both states and for the federal government, it's one that does not have a regulatory fix. It is just basically a consequence of how water and land is utilized there and then diffusely discharges pollutants into the -- into the river.

We've been evaluating that water quality issue since about 2000, when we first developed a Total Maximum Daily Load for the river at the Stateline for sulfate. Total Maximum Daily Loads are essentially a reframing of the pollutant budget of what could be placed in the water without causing violation of the water quality standards. The water quality standards is what drives my programs and they comprise the criteria, as you saw with Don's

numbers there, and then putting -- then it puts up, it's kind of the gauge in terms of where the relative condition in the river is relative to -- to that.

The standard, the criteria, basically set the number that basically defines adequate water quality but, underlying all that, the most important part of the water quality standards is what are the designated uses that make use of that water. Water quality means nothing if it's not tied back to uses, and that is the critical point, and I think it's also the most important part when you're dealing with nonpoint source, because it's impossible to get a nonpoint source to essentially abide by water quality standards and criteria.

We've been at this since 2000 and, in the aftermath of 2006, we came back with a more detailed Total Maximum Daily Load for selenium, and every time we came back to the valley, it seemed like the water quality issues began to escalate. We worked from sulfate, built in boron, fluoride, selenium, uranium. Even though we don't have a water quality standard in Kansas for uranium, Colorado does and, of course, then we do have the drinking water MCL for uranium across both states there, that about 30

parts per billion. All of that is a reflection of the underlying geology and how the river interacts with that geology, both within the channel but, more importantly, across the surrounding lands that comprise the drainage into the river.

When we talk water quality here, there's always been an ongoing dance between water quality and water quantity and, in fact, from our perspective, from Kansas's perspective at the Stateline, we see essentially two different rivers. We see the river from September through May, which is characterized by relatively low flows. We're not seeing much in the way of at least support from John Martin Reservoir, and we see escalated levels of these mineralized constituents, embodied by high values of conductivity seen at the -- at the Coolidge sensor.

And then we see the river between June and August, when the ditches are making their calls, John Martin is making releases, and we see essentially a 300% increase in flow in those three months, compared to the other nine and, correspondingly, a 30% decrease in conductivity there. There is an inverse relationship here on the river between flow and conductivity, acting as the

surrogate for all these mineralized contaminants that we find within the river, so it has always been this question.

The problem, of course, here is within this valley and this basin. This is a very droughty basin. It is essentially, from a hydrologic perspective, bankrupt, and it only -- but it's constantly playing the lottery and looking for those occasional thunderstorms and flood events to essentially refresh and reset the -- the budget and the counter to create more improved water quality conditions.

From our perspective, concentration is one thing but, again, this dance between flow and concentration, the product of that is load, and that's really what's most important to us, particularly because now the river is a closed basin once we approach Garden City, and everything in that mass, in terms of that mass that comes across the Stateline, winds up going vertically, rather than laterally, through the system. That vertical placement of the mass is what Don basically has displayed as this deterioration in the underlying groundwater quality that we see, both in the alluvium and now, by extension, the High Plains

Aquifer.

So that's our -- one of our primary concerns relative to that but, again, the underlying point of water quality is what are the uses? Certainly public water supplies that we've seen with what the investments that the City of Lakin had to make to basically come back into compliance with the Safe Drinking Water Act because of the uranium issues. Deerfield now is encountering more and more of compliance issues relative to that and is looking to hook into Lakin to remedy that situation, but the most pervasive use in the whole valley is irrigation and to what degree are these poor water quality waters influencing our ability to reap an economic return through our irrigation usage.

But also, again, from my perspective, my agency's perspective, aquatic life is every bit as important relative to that, and to what degree are these quality issues influencing the aquatic life that we see within the -- within the river as well. All that embodies in terms of, basically, a sense of how we have to appropriately define -- define the problem.

Our perspective, it's all, given all those factors, is that we think water quality on the river

can be improved. We also don't think water quality standards can ever be achieved. It's a nonpoint source, and this isn't unique to Garden City, the Ark River, or these -- these selenium sulfate uranium issues.

Every time we deal with nonpoint source and its very nature and the fact that it essentially lies outside the realm of regulatory fixes in the Clean Water Act, we're dependent upon incentive-based programs, voluntary participation on the part of landowners and ag producers to put in the appropriate practices to abate those loads going into our river system.

Across all hydrologic conditions, that's an impossible task, because we'll never have enough money to be able to saturate the entire watershed with those types of practices, and there will always be some event that will happen that will be outside of our control, our technical control, with the practices we've put -- we've put into place.

So we're going to be all about improvement, but we're going to also have a realistic expectation of just what defines adequate water quality that supports our uses, even though it doesn't meet the table value of what the criteria say reflects good

water quality on either side of the -- of the Stateline.

As we've -- and we've, frankly, have had a very, very good relationship with our counterparts at the Colorado Water Quality Control Division on this issue, and we've been very heartened by the fact that over these 20 years, they've taken this issue seriously and have risen the issue of what they would call the Lower Ark to a point where it's a priority for them and looking at ways to remedy the situation or address the problem through some alternative management means there.

They've spent a lot of the money on their side, and the great irony is that while it is we're seeing some of the problem, the fix lies over on the other state, so any money we would get essentially has to be spent over in Colorado to put in these, you know, appropriate abating practices.

As we carry on the dialogue with an ever-expanding audience, there's been sometimes a tendency to, in the course of us trying to talk about how we fix the problem, it will devolve into an issue of how do we fix blame? We're not -- neither state is interested in that. We again, because of the nature of nonpoint source, it is just

a repercussion of the fact that we inhabit the valley, we utilize the waters in the valley, and we utilize the lands there, and all that has some type of consequence in terms, ultimately, of what the river reflects in terms of its quality.

So in conversations with our counterparts in Colorado at the Water Quality Control Division, we've stumbled upon an idea, a concept. We steal a concept that's embedded within the Clean Water Act at Section 319(g), which is a call when one state is not seeing its water quality standards being met because of nonpoint sources, contributions that are occurring in another state, that state has the ability to petition the EPA administrator to convene an interstate conference to talk about the issue and look at management ways to ultimately deal with that.

We like the concept, but we think we can do it just on our own, as a state-only type of invocation of an interstate management conference that maybe we'll try to get kicked off in the summer of 2022. Both states come together with an agenda that touches on problem identification and then defining what the issues are, especially the impacts to the uses that are being made of the waters on both sides

of the Stateline, the considerations that have to be made when trying to find an appropriate solution, and that's where, frankly, the Compact comes into play there, because many of these practices do invoke some level of consumptive use and the Compact, at its core, is all about managing consumptive use to facilitate the delivery of those useable flows across the Stateline.

So there has to be some recognition of that within the context of any solution that would come -- come forth and, therefore, the Compact Administration would be part of this conference as well, to present those types of aspects as well, and then the take-home would be, okay, what opportunities exist for both states to collaborate and work together to get resources, research, knowledge base, and enhanced participation for practices to be placed on both sides of the Stateline; on the Colorado side for source -- pollutant source abatement and control; on our side, means to mitigate impacts to the uses that we make of our -- of our waters there.

From that, we can then begin to work on a common strategy that we can go forth and find opportunities -- opportunities for additional

funding to -- to basically do that while working through the sociology of the valley to recognize that, as a nonpoint source problem, it will go no -- money goes nowhere unless we can place it in the hands of people that are willing to place those practices on the ground, and they're only going to be willing to do that when they look at it from the perspective of "How does this affect my bottom line?" So getting them to look at things like soil health and, you know, reducing energy and input costs, even if it means potentially a little less yield, but it begets greater profit, those types of things are the kind of messages that are -- lead us to some -- some level of success to continue to move forward.

But, regardless of how we do this, everyone in the room needs to understand, again, because of the nature of the nonpoint source, we're looking at a very, very extended time for return on investment. We don't move the needle very -- very far when it comes to water quality improvement when we're trying to tackle a regional nonpoint source problem such as this.

So we will invite the Compact Administration and the two respective water quantity agencies to

participate in this conference that, again, we hopefully can pull together and convene this summer and, for once and for all, bring in all the appropriate players and users to work off a common strategy and not attack this problem in the -- in a somewhat piecemeal fashion that -- that we've had to date and create somewhat more of a collaborative, coordinated effort to rally behind as we work toward improving conditions in the valley on both sides of the Stateline.

Thank you for the opportunity for some comments.

MR. RIZZUTO: Thank you, Tom. Questions?

MS. MITCHELL: I have a question, Chairman.

MR. RIZZUTO: Sure, Rebecca.

MS. MITCHELL: Or I guess a bit of a commentary that I think it's important for us to continue to recognize as we talk about these issues. I think the last few presentations have been heavily focused on water quality, and I do think that that's important and I think that, you know, it may -- the ARCA may seem like it provides a good forum for this because all the stakeholders that are in the room that are concerned with water quality and they're

present, and so -- but I do think it's very important for us to continue to remember that the Compact only addresses quantity and it doesn't contain any provisions regarding water quality.

So, while I think Tom brought up some really good ideas that are voluntary and opportunities for both states to collaborate, it's important that we remember that the ARCA can't make decisions that directly address water quality.

So I think we can show Colorado is certainly interested in working and has been working with Kansas. We're going to continue to do that to improve conditions for both Colorado and Kansas water users. I think we've seen some examples of that today, even, or yesterday. By studying the water quality in the river and negotiating for a new account in John Martin Reservoir, that may lead to improvements in water quality below the reservoir.

We're going to continue. We're happy to consider other solutions and attend any other meetings outside of ARCA to continue to improve water quality in the Arkansas River. It's for the benefit of all of us, but I think we still have to remember, you know, the guidelines of the Compact.

MR. RIZZUTO: Tom, did you have a

comment?

MR. STILES: KDHE concurs 100%. We don't view the Compact as a remedy for our water quality problems. They are a consideration, because it does no good for us to put forth some certain, let's say, a program to proliferate multiple wetlands throughout the valley that induce a consumptive use demand on that and create Compact problems.

We don't view the Compact as our solution. We view it as someone who can help guide a pathway forward.

Frankly, we think there are other things that we can do, such as nutrient management in the traditional sense of dealing with a 319 program, and fertilizer management that plays to potentially draw a -- lowering the oxidized conditions that we see down at the interface between the water and the geology, and that will be Compact neutral, relative to that.

We don't -- again, we're 100% in agreement with -- with Colorado on this. The Compact is not the -- the vehicle for remedy, but it is a significant player there that will influence the choices of the strategy that -- that we take. That is the -- the gist of our message to the Compact

Administration.

MR. RIZZUTO: Okay. Earl?

MR. LEWIS: Thank you, Mr. Chairman, and just to add onto that, and maybe ask in response to Becky's comments, I think, while we agree, I think a couple points.

First, the fact that we are able to talk about water quality and spend a significant amount of time on that topic really goes to show the work that's been done over the years on our water quantity side. Not that we don't have some questions, concerns to continue to pay attention to on the water quantity side, but -- but I want to recognize the progress that's been made to get us to the point where we can spend time on water quality, and I do think that there is a lot of work going on across the Stateline, on both sides, on water quality.

I do think that there are issues that how we manage our water quantity or releases from John Martin or the multipurpose account discussion, those things, while quantity issues primarily, how we handle them or how they are addressed can have an effect on our quality, and I think that's -- you know, we've seen, both from Don's comments and Tom's comments, just the amount of water and the

relationship of our releases to the salinity and uranium and those issues.

There is a tie there that, frankly, maybe historically, we have separated too much, and so this does provide a very good forum to make sure that we are looking at things holistically, from both the quality and quantity standpoint, and how the one action may impact the other, so I'm encouraged by a lot of the presentations yesterday and discussions today and want to see those continue. Okay.

MR. RIZZUTO: Thank you. Any other comments? So I assume, next year, that will be part of the agenda of whether -- of the committees to discuss the -- what's going on with this committee you hope to put together by summer; correct?

MR. STILES: It will be.

MR. RIZZUTO: Will they give a report back?

MR. STILES: It will be an ongoing discussion from, probably from this point forward, just by the way things have launched these past few days and, again, the nature of dealing with nonpoint source is it's a long slog. It is a -- it's a hundred-year war, and -- and so it will be an

ongoing discussion and highlighting new projects and some -- maybe some new knowledge that comes to bear from research, et cetera, but there will probably not be any great "Eureka" moments where we can declare victory, but we can declare progress.

MR. RIZZUTO: Okay. Randy.

MR. HAYZLETT: Your comment, Tom, though, which really kind of hit home, is water quality means nothing unless it's tied to uses, and uses can't be limited just to human consumption. There's a lot of other factors out there, so I'm glad to hear that there's going to be a summit of some kind, and I do think ARCA needs to be involved in it.

MR. RIZZUTO: Okay. Questions, comments? Okay. Thank you very much, Tom.

MR. STILES: Thank you for your time.

MR. RIZZUTO: Okay. Next we'll move to Compact compliance. First, call on the honorable Kevin Salter from the State of Kansas.

MR. SALTER: Okay. I think we're going to kind of tag team this, Kelley Thompson and myself, again.

MR. RIZZUTO: Okay.

MR. SALTER: Kevin Salter with the Kansas Division of Water Resources. I don't know. Kelley,

did you want to start?

MR. THOMPSON: Oh, sure, yes. So Kevin has on the screen there that -- I hope you can hear me, yeah. Thank you.

My name is Kelley Thompson with Colorado Division of Water Resources. On the screen is the Ten-Year Compact Compliance Accounting Table that summarizes the estimated accretions and depletions to useable Stateline flow for the current Ten-Year Accounting period, so that's between 2011 and 2020, and the final accounting number on the lower right is the average of those Ten-Year results, and so the first column on the left is the accretion or depletion that comes out of the H-I Model run for that year, with the other columns from Offset Account deliveries and winter depletions from post-'85 wells, but for 2020, for this last run, Colorado submitted its initial run in April, and Colorado and Kansas experts were able to refine a couple items to come to an agreement on the results a bit earlier than normal, in May, but with the added year 2020 results and dropping off a larger accretion that was about 8300 Acre Foot from 2010, we did result in a shortfall in the Ten-Year average accretion to useable Stateline flow of 62 Acre Feet

that you see there and, actually, as we -- as we sorted out issues like pumping data, et cetera, we bump back and forth between a positive and a negative on the Ten-Year number but, with the final run, we did end up with a -- with a shortfall, and I believe, since this current accounting was sort of established in 2006, this is the first time we've seen a shortfall in the Ten-Year Accounting, and that did trigger the -- the administrative conditions that come with a shortfall, but I -- yeah, I really want to thank Kevin and Rachel Duran and Spronk Water Engineers, again, for their continued work with us to work on the H-I Model side of this, so I'll pass it to Kevin. Thank you.

MR. SALTER: Yeah.

MR. RIZZUTO: Thank you, Kelley. Kevin.

MR. SALTER: Again, appreciate Kelley and his staff and the Division 2 office in putting all this information together and giving us the first run at this.

I would note, again, this is a Ten-Year sum, so it depends on the year that's falling off and the year that's coming on, and if you notice that the year that came on was actually an accretion of about 5500 Acre Feet so, for the year, there actually was

more water delivered under the model than what was required, but when you looked at the Ten-Year sum, there was this 62 Acre Foot.

Also, that doesn't mean that Colorado is out of compliance, because Colorado did deliver to Kansas that 62 Acre Foot, so as far as Compact compliance goes, we're good. So if there's any questions or that of Kelley or I...

MR. RIZZUTO: Okay. Questions? We can make this an exhibit to the --

MR. SALTER: Yes.

MR. RIZZUTO: -- report, and that would be F.

Okay. With that, I'm going to call a five-minute break, and then we'll come back and start the reports from the different committees.

MR. SALTER: While we have Kelley keyed up, I think he was going to deal with 6.B. Sorry.

MR. RIZZUTO: Oh, so you misled us, Kevin.

MR. THOMPSON: Is it okay if I just add one quick bit?

MR. RIZZUTO: Before we take a break, Kelley, go ahead and finish up.

MR. THOMPSON: Yeah. Okay. Yeah, and

it's really quick on this PDF evaluation, the presumptive depletion factors evaluation.

Again, thank you, Chairman Rizzuto, for letting me touch on this, but so every year, we give you an update of the presumptive depletion factor that we're recommending to use for supplemental flood irrigation in our Rule 14 replacement plan, so this will be used for -- this is used for the next year in those Rule 14 plans and, in 2015 and then in 2017 onward, we've been recommending a value of 36% for this supplemental flood furrow irrigation PDF to use when we have -- when we're mixing groundwater and surface water in flood irrigation, and so Colorado recommended to Kansas experts that we maintain that 36% value yet again for 2022 for administration of pumping for those supplemental flood furrow irrigations, and Kansas did agree with the use of that number for 2022, and so I think that's -- that will be our number and I really thank, again, Rachel Duran, particularly, for looking over our evaluation, and that's all I have. So, thank you, Chairman Rizzuto. Appreciate that.

MR. RIZZUTO: Okay. Questions for Kelley? Okay. None? All right.

Thank you, Kevin and Kelley, and now we'll

take a five-minute break. We'll come back at approximately 20 to 12 and do the committee reports, and we'll not plan to take a lunch break or anything. We'll just finish up our agenda. Okay. Five minutes.

(A break was then taken from 11:32 a.m. to 11:40 a.m.)

MR. RIZZUTO: We're going to reconvene at approximately 11:42 Central Standard Time.

Okay. Is there a report of Special Engineering Committee or was that just -- oh, okay.

MR. LEWIS: I'll take that, Mr. Chairman.

MR. RIZZUTO: All right. Earl.

MR. LEWIS: Thank you. Just quickly here, we -- there were a couple meetings of the Special Engineering Committee this last year, so a little progress was made. I would say that we -- there was some reinvigoration of the committee here this fall, coming up with a fairly aggressive schedule to work over the next several months, to work especially on the multipurpose account, but also discussing some of the other issues that have appeared on the issues matrix over the years, again, trying to bring those to some conclusion and hopefully have something to bring back to the

meeting next year that would be more firm proposals or recommendations, so progress, but no recommendations today.

MR. RIZZUTO: Okay. Good. Thank you, Earl. Next, we'll move to the Engineering Committee and, Earl, you're back on tap.

MR. LEWIS: I am. Thank you, Mr. Chairman, and I'd like to recognize Scott, my counterpart on the committee, and the committee met yesterday in this room and heard a number of presentations. I'll read some of this into the record, and we have a written report that we'll provide as an exhibit to the record as well.

Committee received an update on progress related to the ArkDSS that we heard about a little bit earlier today from Colorado DWR staff and the Wilson Water Group. This included the elements for GIS, Administrative Tools, StateMod and StateCU modeling that were completed under Phase I. The project is now in Phase II, which includes enhancements to the Colors of Water and Forecasting Tool, additional StateMod modeling to look at unique operations like the Winter Water Storage Program, Trinidad Project operations, and John Martin Reservoir storage.

Under the surface water allocation model, the data processing and collection have been completed. Currently working on the historical calibration process. Future groundwater work will focus on physical parameters. The ET report is now available on the Colorado DSS website for review, and I would note that the presentations from yesterday and today will be on the -- on the ARCA website, so if there's folks that want to look at what the -- those presentations from yesterday were, they can do that, as well as access those links that were in the presentation.

Bill Tyner with Colorado DWR and Kevin Salter provided an update on discussions related to the proposed Colorado multipurpose account in John Martin Reservoir, and negotiations between Kansas and Colorado are moving forward trying to resolve some outstanding issues.

Kevin provided an update on efforts to replace the Frontier Ditch flume. We'll hear about that again next year.

Carlos Aragon with the Corps of Engineers presented to the committee the 2021 reservoir operations for Trinidad and John Martin Reservoirs. At Trinidad, a new heavy equipment shed was

constructed in the maintenance yard and contracts were awarded to replace the sump pump in the dam tower and to replace the packing glands on the two pairs of surface and emergency gates. At John Martin Reservoir, the sump pumps stopped working so were inspected and damaged components were repaired. There is a two-year program underway for flood sensor installation at John Martin Reservoir.

Dustin Ethredge, who we heard from today with USGS, reported on the USGS/ARCA Cooperative Streamgage Program. USGS maintains a total of 10 streamgages along the Ark River. Beaver dam activity occurred at both Big Sandy Creek near Lamar and Apishapa River near Fowler. Efforts were made to remove the beaver dams during the past year, but some dams continue to be a problem and return.

Jack Goble with the Lower Ark Water Conservancy District provided the committee with an update on their water quality programs. The District started a project in 2016 to test the efficacy of Best Management Practices to improve water quality which included canal/ditch lining and installation of sprinklers. A project site on the Fort Lyon was selected that would allow for baseline data to be collected prior to installation of the

improvements. The project will evaluate the impact of the BMP's on water quality once enough data has been collected. Future projects include canal or pond lining, more lateral and canal linings, rotational-fallow projects, riparian buffer zones, nitrogen fertilizer reduction, wetland restoration, soil health improvement practices. Lease-Fallow is likely to continue to increase, but lack of storage is a significant limitation. Additional storage will be required to implement these BMP's on a large scale.

Finally, Chris Woodka with the Southeast Colorado Water Conservancy District presented on their 2021 operations and projects. Currently working on a Features and Asset Value Study, which is in Phase II, to determine the value of the Fryingpan-Arkansas Project. Construction will begin in October or November of 2022 on the Ark Valley Conduit, again which we heard about today, a Boone and Avondale reach completed by 2024, with an estimated completion of the entire line by 2035.

So, Mr. Chairman, I would submit the report for the record. We have no action items for the ARCA to consider.

MR. RIZZUTO: Okay. Have any questions

of Earl by other members? All right. Then it would become Exhibit G, the report that you're submitting.

Okay. Operations Committee. First I'll call on Operations Secretary Report by Bill Tyner.

MR. SALTER: Mr. Chair, while we're setting up for this, it's been kind of practice we have all --

MR. RIZZUTO: Combine the reports and will all be G, so as we go, any other reports will roll into Exhibit G. Okay, Bill.

MR. TYNER: Good morning, Chairman Rizzuto and representatives to the Arkansas River Compact Administration. I will provide a brief summary of the operations that occurred related to John Martin Reservoir during Compact Year 2021. I will also provide some information related to Trinidad Reservoir.

I would like to recognize those individuals from Colorado Division of Water Resources who are participating in the meeting today and who contribute to the success of daily water administration in Colorado, in compliance with the Compact. Joining us by Zoom today, we have Kevin Rein, our Colorado State Engineer, and of course, you've heard from Kelley Thompson from the State

Engineer's office modeling group. Also joining by Zoom from the Pueblo office, or from their home offices, are a number of our Division II staff, including Water Commissioners Lonnie Spady, Jeff Montoya, Doug Hollister, Dan Henrichs, Talon Canterbury and Jacob Olsen. Also joining us by Zoom are Lori Lest, Assistant Division Engineer; Phil Reynolds, reservoir operations; Joe Regur and Brian Sutton, augmentation coordinators; and Monica Long, GIS specialist; and Jessica Wodiuk, Administrative Assistant from our Pueblo office. In person today in the meeting from the Division II office, we have Assistant Division Engineer Rachel Zancanella, and Bethany Arnold, our Water Resources Engineer, and Brandy Cole, our Water District 67 Water Commissioner.

Our employees work closely with Kansas staff throughout the year and I want to thank Kevin Salter, Rachel Duran, and Alex Torrance and the rest of the Kansas staff as we work together on ARCA matters. Dan Steuer from the Colorado Attorney General's office is here today participating with us in person, and I want to express my appreciation for all that Dan does to help us work through Compact compliance considerations throughout each year.

Andrew Rickert with the Colorado Water Conservation Board has worked hard with Rachel Duran and Kevin Salter to plan for the ARCA meeting and, as we heard yesterday, he and Rachel Duran did great work to bring a number of ARCA reports closer to finalization for years in the 1990's.

A notable exception among our staff participating in the meeting is John Van Oort. John passed away on November 30th, 2021, and that leaves within our organization a tremendous void and, within our hearts, a huge hole. John perhaps worked most closely with Kevin Salter and Rachel Duran and particularly had worked to help try to resolve some of the key areas of disagreements between the states. John worked extremely hard to make sure new issues didn't arise by timely and thoughtful interaction with Kevin and with Colorado water users. He was an impactful teacher and coach for our staff and his character and ability to develop relationships with others, even while addressing difficult issues, will continue to be what we strive to achieve as we move forward.

One of our colleagues from the State Engineer's office mentioned to me in an email that on the same day we lost John, Colorado lost another

great water leader when former Colorado Supreme Court Justice Greg Hobbs passed away. I know Kevin heard Justice Hobbs speak many times and I think some of the Kansas representatives did as well.

My colleague went on to say something that I thought was worth speaking into the record today when he noted, with the passing of Justice Hobbs and John on the same day, the Lord apparently had some water problems he needs taken care of. Two great men of equal stature taken from us too soon and, to my opinion, I wholeheartedly agree. We appreciate the Compact Administration's willingness to recognize John today.

All right. Turning to some more boring facts, but ones that are important to speak into the record, at the beginning of Compact Year 2021, John Martin Reservoir contained approximately 33,858 Acre Feet. Conservation storage occurred during the period from November 1st, 2020, through April 16, 2021, without any -- with a couple of subsequent storage events. A total of 17,158 Acre Feet was stored during this period and that total included a number of transfers from the Colorado Upstream Consumable subaccounts and the Offset Account to conservation storage during the winter to make sure

depletions to conservation storage were properly replaced.

During the 2021 summer Compact storage season, there were two events that resulted in additions to conservation storage beyond April 16th, 2021, when the last of the winter storage was transferred into accounts. The first conservation storage event started on May 25th, 2021, and ended on June 5th, 2021, with total inflows of 19,397 Acre Feet. The second conservation storage event started on August 2nd, 2021, and ended on August 6, 2021, with total inflows of 6,776 Acre Feet.

Storage of other water under Section III of the 1980 Operating Plan during the Winter Water totaled 17,589 Acre Feet. From this storage, 35% was distributed to make up a delivery deficit of 1506 Acre Feet to the Kansas Section II Account and then to refill the Transit Loss Account by adding 1728 Acre Feet to bring the total and maintain the total at 1700 Acre Feet in that Transit Loss Account.

Additionally, water from the 35% charge was distributed to Kansas and Colorado Section II Accounts, once those delivery deficit and transit loss obligations were met, with 919 Acre Feet going

to the Kansas Section II Account and 2005 Acre Feet going to the Colorado Section II Accounts.

Amity's Great Plains storage right was in priority three times in Water Year 2021:
May 24th of 2021 through June 6th of 2021;
July 4th of 2021 through July 5th of 2021;
August 3rd, 2021 through August 4th, 2021. This allowed Amity Mutual Irrigation Company to store 8923 Acre Feet gross in John Martin Reservoir. From this storage amount, 3123 Acre Feet, representing the 35% storage charge, was transferred from their account.

This storage water was first used to fill the transit loss to 1700 Acre Feet and then was distributed to Kansas and Colorado Section II Accounts. 644 Acre Feet of water was distributed to those accounts on March 15th, 2021, from Amity Section III account per a corrective operation accounting adjustment that occurred in error in the Water Year of 2020 accounting, and that was as agreed to by Kansas Division of Water Resources and Colorado Division of Water Resources.

The Offset Account received approximately 9760 Acre Feet through inflow or transfer. Kansas released -- called for a release of water from the

Offset Account in two segments totaling approximately 10,340 Acre Feet. Rachel Zancanella will follow along after Kevin gives his report and provide a little more detail on the Offset Account.

The Permanent Pool in John Martin Reservoir saw a decrease across the Compact Year of 1164 Acre Feet, despite the use of the Highland Canal water right to replenish evaporation from the account totaling 783 Acre Feet.

Kansas used most of their Section II water during 2021, releasing 18,800 Acre Feet with a delivery deficit on the releases of 773 Acre Feet. A portion of that delivery deficit was able to be made up by a transfer of storage charge water from the last of those Amity Great Plains storage events that occurred at -- at the end of the last Kansas release, and that resulted in 252 Acre Feet transferred to the Kansas Section II Account to partially make up that delivery deficit.

Colorado ditches utilized approximately 31,990 Acre Feet of Section II water in 2021. At the end of the Compact Year, the contents in John Martin Reservoir was 16,362 Acre Feet.

Finally, with respect to Trinidad Reservoir, the permanent fishery pool received approximately

447 Acre Feet to partially offset 684 Acre Feet of evaporation from the larger of the two Permanent Pool accounts in Trinidad Reservoir.

Also, with respect to the Ten-Year Review process that was mentioned a little bit earlier for Trinidad Reservoir, I would like to clarify for the record that the proposal made by the Colorado state and division engineers of Kansas is one of a number of items for discussion for the Special Engineering Committee as part of that overall negotiations related to the new multiuse account in John Martin Reservoir. The discussion of that proposal has not moved forward in the past 12 months, partially due to the fact that both states are interested in reviewing how the Arkansas River Decision Support System model work presented to the Engineering Committee yesterday might be utilized as part of that Ten-Year Review process for Trinidad.

Finally, I want to thank Kansas representative and staff who participate in the Special Engineering Committee discussions. Certainly, Kevin and Rachel and Alex are a big part of staff-to-staff efforts with our staff, but I also want to thank the Kansas representatives, Randy Hayzlett in particular, who -- and Earl Lewis, who participate on the Kansas

side, along with Kevin Rein, our State Engineer, as we have those discussions.

And, last of all, I want to thank the folks from the Corps of Engineers, Bureau of Reclamation, USGS and National Weather Service, who we work with throughout the Compact Year, and it's always been in a very professional manner that we've been able to work with those federal partners. This concludes my report and I'll be glad to answer any questions folks may have.

MR. RIZZUTO: Thank you, Bill. Questions of Bill? Well done.

MR. TYNER: Thank you.

MR. RIZZUTO: Okay. Next, Kevin Salter, Assistant Operations Secretary Report.

MR. SALTER: Kevin Salter with the Kansas Division of Water Resources. I assist -- I serve in the role of Assistant Operations Secretary. Go ahead and go to the next slide.

I'll just be brief this morning. A lot of the stuff was presented yesterday but just again, to the full Compact, I wanted to note that we're going to have a couple of milestones. One, the negotiations for the Compact began 75 years ago this past January, but we also will see a 75th anniversary of

the Compact and the completion of John Martin Reservoir coming up in 2023. Just briefly go over the John Martin content, the Kansas releases, the Winter Water Storage Program, so next slide, please.

So this is a slide I'd like to show and kind of gives you some context because there at the top of the screen is the top of Compact conservation storage. You can see that we operated the reservoir on the bottom part of the reservoir this year. Go ahead and go to the next slide.

We did have a couple releases that's being talked about here. I'm not going to go into them. The states did agree to some release accounting and I thank Bill and his staff for working through that, especially John Van Oort, and then there is an issue that we're going to try to work through in this upcoming year is how we handle the target flow at Granada.

Kansas did keep focus on getting the Offset Account fully released, understanding kind of the conditions we're having at the Stateline. Next slide, please.

So, just briefly, here's just a graphical representation of the releases. I'm not going to go into the numbers. They've been here before, but we

did have kind of two back-to-back releases. There was just a brief interruption. Next slide, please.

So, again, that's how we ended the first release was primarily from the Offset Account. The second one was primarily from the Kansas Section II account. Next slide, please.

The Pueblo Winter Water Storage Program, again working a lot with John last year, we noted some flows that got from the Ark to the Purgatoire and needed to be included in that base flow and we worked to include them, and it was difficult because we were kind of estimating what was going on last spring. Bill Tyner suggested that they would go ahead and put a temporary measuring gage on those wasteways, and they did do that this fall, so this year, we have some numbers that we can work with as far as what flowed from Consolidated to the Purgatoire River, and that's going to be much appreciated. It was the first year, so it was kind of a learning experience, and we'll kind of go from that and build on it hopefully into the future. Next slide.

And, as Bill alluded to, John Van Oort worked very closely with me over the years. I met him first when he was the District 14/15 Water

Commissioner reviewing dryup and, at that point in time, we started having a tradition. If I got up in the area, we'd meet at Musso's for lunch, and whether he was involved with whatever I was doing or not, he would come down, and so I'd go up to a meeting of the Southeastern District and he'd come down and have lunch at Musso's with me, and it was kind of neat, because we talked about kids. We talked about work. We talked about all sorts of things, and it was a nice personal relationship, and there's just been a number of issues that, with John's efforts, it made things easier, and he really did represent the interests of Colorado well, but he worked to figure out how to get past the issues and move on. There was some issues that we just couldn't get past, but he -- those issues that we could, you know, let's figure out what we can do. Some of them we got resolved; some of them are still out there; but, you know, John would be happy to know that, you know, we did get the releases agreed to and that we're working on the baseflow with Ark River at Las Animas.

So I think with that, that's the end of my report, and I appreciate the time. Any questions?

MR. RIZZUTO: Questions? Appreciate you

and Bill and your insight to John and of course, later, we'll recognize him, but it sounds like he had deep personal relationships and you can see that through your presentations, so thank you.

Offset Account Report, Rachel Zancanella.

MS. ZANCANELLA: Good morning.

MR. RIZZUTO: Good morning.

MS. ZANCANELLA: Thank you, Chairman Rizzuto, representatives, for the opportunity to summarize the 2021 annual report for the Offset Account. As I've noted before, I have added a slide on this account to help anyone who isn't as familiar with it.

The Offset Account was created after the 1980 operating agreement to facilitate the -- to facilitate or offset the depletions to usable -- to Stateline flows and to conservation storage in John Martin Reservoir. This slide just depicts the spill order and where that account falls within the reservoir and breaks down what the subaccounts for that particular account consist of.

On the Colorado Consumable Upstream account, we have specific subaccounts allocated to entities to be able to deliver their water to that account. Historically, that has included LAWMA and the CWPDA

account. In 2021, LAWMA -- or, sorry -- in 2021, AGUA and CWPDA, two well associations on the Upper Arkansas River, combined into one entity now known as AGRA, so that's been reflected for the next year, going forward in their account. We also added a subaccount for the Catlin Aug Association to be able to make deliveries on their behalf to the account as well.

The other accounts are the Kansas Consumable account, the Colorado Downstream Consumable account, Kansas Charge account, the Return Flow account, and the Return Flow Transit Loss account.

This slide is the summary of the Offset Account and it indicates all the transactions that occurred. The start of the Compact Year for 2021, there was 5529.6 Acre Feet in the account. There were 3418.59 Acre Feet transferred into the account, 6342.2 Acre Feet of inflows, 1135.2 Acre Feet were lost to evaporation, 1543.69 Acre Feet were transferred out, and 10,354.37 Acre Feet were released. At the end of the Compact Year for 2021, there was a total of 2257.14 Acre Feet in the account.

And then finally, as a part of this report, I have an update on the Permanent Pool which was,

under a 2019 resolution, approved to use the Highland water right as a source of supply for it. In order to do that, a minimum delivery of 7228 Acre Feet had to be delivered to the Offset Account for this year, which was met and exceeded and, therefore, 782.58 Acre Feet were delivered to the Permanent Pool under the Highland Canal water right, and that concludes my report.

MR. RIZZUTO: Okay. Questions of Rachel? None? Thank you, Rachel.

Now to Lane Malone, any report and recommendations from the Operations Committee.

MR. MALONE: Just on the recommendations or should we go over what we did? We kind of --

MR. RIZZUTO: Go ahead.

MR. MALONE: The committee received the Compact Year reports from Bill and Kevin. We got the -- Rachel provided an update on the Offset Accounts and Permanent Pool operations. Rachel Duran informed the committee that the next joint report of the states regarding review of Offset Account operations will be for the period of 2017 to 2021, to be presented at the 2022 annual ARCA meeting. Rachel Zancanella provided an update on the implementation of the Irrigation Improvement

Rules.

On the committee recommendations to ARCA, the committee defers the 2021 Operations Secretary Report to the Special Engineering Committee to work towards resolution of issues that are holding up unapproved operating secretary reports.

MR. RIZZUTO: Questions of Lane? None. Thank you, Lane.

Administration and Legal Committee, first thing, Stephanie Gonzales is the Recording Secretary and Treasurer.

MS. GONZALES: Thank you, Chairman Rizzuto and the Colorado Kansas representatives, for allowing me to present this Compact report for the financial happenings for the ARCA.

The following items were presented to Admin and Legal Committee for their review and consideration: ARCA financials were finalized for Fiscal Year 2021. Income and expenses were in line with the budget for the year and with just the usual expenses and activities to report. An audit was conducted with no findings and the audit engagement letter from the auditor was received, with the audit costs being consistent with the approved budget. The joint funding agreements for the operation and

maintenance of the streamflow gages were received from USGS, which require my signature, as well as the Colorado SMS billing. State assessments have been emailed to each respective state at the rate indicated by the 2021-22 approved budget, and I believe that concludes my report to the Compact and, once again, I want to thank Kevin, Rachel, and Andrew for all their work and the vital communication that happens, the collaboration that happens to make this meeting a success, and I believe that's all I have.

MR. RIZZUTO: Okay. One suggestion, Stephanie. Recognizing who the auditor was --

MS. GONZALES: Yes.

MR. RIZZUTO: -- by name.

MS. GONZALES: It's Ron Farmer with Rfarmer, LLC, from Lamar.

MR. RIZZUTO: All right. Questions of Stephanie? None? I'll just ask one on the budget piece.

MS. GONZALES: Yes.

MR. RIZZUTO: Is that a one-year budget, no roll-forwards? It's basically you have $10 and if you only spend $8, you don't roll forward $2?

MS. GONZALES: That has been typical for

the -- for most of the expenses. Every once in a while, we will have a request from the Operations Secretary in Pueblo because expense --

MR. RIZZUTO: Yeah.

MS. GONZALES: I know we had that communication.

MR. RIZZUTO: That's why I asked the question.

MS. GONZALES: And we've discussed it in the past that if they were -- they didn't realize those expenses as of June 30th, that we might be able to use that for the following year, but it is at a budget of $6,100, so...

MR. RIZZUTO: Yeah, I knew it was a small budget.

MS. GONZALES: Yeah.

MR. RIZZUTO: Okay. Thank you.

MS. GONZALES: They're usually pretty close.

MR. RIZZUTO: Yeah. Thanks for the clarification. Okay. Becky.

MS. MITCHELL: Yes.

MR. RIZZUTO: You are on and we're anxiously awaiting your report and recommendations.

MS. MITCHELL: Thank you for that,

Chairman. So in terms of our report out from the committee meeting of the Administrative and Legal Committee, the summary is as follows: We, the committee, reviewed the agenda, committee agenda, and added an agenda item 5.D, which was in regards to the 5th anniversary of the Compact and John Martin Reservoir or -- yeah, 75th. I don't know why I said 5th. I'm sorry.

The committee also reviewed the Annual Meeting agenda, adding agenda items 11.A, John Van Oort letter, and 11.B, the Roy Vaughan recognition.

Rachel Duran noted that the 2020 Annual Meeting transcript had been provided by the court reporter and was in the process of being reviewed by staff. Suggested edits will be sent back to the reporter and the goal is that this transcript would be ready for approval at ARCA's next meeting, be that a special or annual meeting.

Also, Andrew Rickert provided an update on the work done during the past Compact Year on the ARCA Annual reports. You've already heard mentioned drafts of 1994, 1995, 1996 and 1998 annual reports have been put together and passed on to the Operations and Assistant Operations Secretaries for their final review. The drafts will then be

provided to the Admin and Legal Committee for their review and approval.

Stephanie Gonzales -- and, Stephanie, I want to thank you for your work. You're -- you're obviously doing a heavy lift for us all the time, so Stephanie, the ARCA Recording Secretary and Treasurer, provided her report and presented the Auditor's report, which we just heard about.

The Cooperative agreements with USGS, Colorado SMS contract, and budget for Fiscal Year 21-22 were discussed. There was no modifications needed for that budget. The proposed Fiscal Year 2022-2023 ARCA budget was reviewed.

One proposed resolution was put before the committee, entitled *Regarding the Special Engineering Committee for 2022-2023*.

We also did nominations of ARCA officers and committee chair appointments were done within this committee and then there was a discussion on how to celebrate the 75th ARCA anniversary. There -- there was also a discussion on possible dates and locations for the 2022 ARCA Annual Meeting.

The committee then made recommendations to ARCA, the first being the committee reviewed the Annual Meeting agenda, added agenda items 11.A, the

John Van Oort letter, and 11.B, the Roy Vaughan recognition.

The committee then recommended also that ARCA approve the Fiscal Year 2020-21 auditor's report and authorize Stephanie to sign the engagement letter for auditor's services.

We then also recommended that ARCA authorize Stephanie to sign the Colorado and Kansas USGS Joint Funding Agreements and the Colorado SMS contract for Fiscal Year 2022-2023.

We also recommended that ARCA approve the Fiscal Year 2022-2023 budget and assessment.

We also recommended that ARCA approve the resolution titled ***Regarding the Special Engineering Committee for 2022-2023***, and then we finally recommended that ARCA approve the following slate of officers for 2022: The first being vice-chairman, Randy Hayzlett; the Recording Secretary and Treasurer, Stephanie Gonzales; Operations Secretary, Bill Tyner; Assistant Operations Secretary, Kevin Salter, and I do want to take a moment just to thank them all for their consistent and hard work, both in the past and I know what we're going to be giving in the future.

Then the committee recommended the following

committee chairs, and the first being the Engineering Committee, Scott Brazil as chair, Earl Lewis as a member; for the Operations Committee, Troy Dumler as chair, Lane Malone as the member; for Admin and Legal, Randy Hayzlett as chair, myself as a member.

We also then recommended a committee be appointed to plan the celebration for the 75th anniversary of the Compact and that the committee would work with the federal agencies as well as propose the budget for the celebration.

We then finally recommended that ARCA approve the dates of December 7th for the committee meetings and December 8th for the Annual Meeting, both of those meetings to be held in Lamar, Colorado.

That is my report out from the Legal and Administrative committee.

MR. RIZZUTO: Randy?

MR. HAYZLETT: I would make the motion that we approve the report as presented and the action items that Becky just described, and Kevin is holding his hand up over there.

MR. RIZZUTO: Kevin.

MR. SALTER: I hate to do this, but I couldn't get an edge-wise in with Becky. It would

be best to have addressed those issues as they went through, because it's better to address those with a vote of ARCA on each individual item.

MR. RIZZUTO: Each individual item? Okay. So --

MS. MITCHELL: Would you like me to go through each recommendation?

MR. RIZZUTO: That -- that would be a great idea. Why not?

MS. MITCHELL: Okay.

MR. RIZZUTO: We'll be consistent then.

MS. MITCHELL: The first -- the first being agenda Item 11, adding agenda Item 11.A and 11.B.

MR. SALTER: Already done.

MR. RIZZUTO: Okay. She made the motion. Second?

MR. BRAZIL: Second.

MR. RIZZUTO: Okay. And --

THE REPORTER: I don't know who said "Second."

MR. RIZZUTO: Scott Brazil, and per rules, each state gets one vote or votes as a group, so how does Kansas vote?

MR. LEWIS: Kansas votes "Aye."

MR. RIZZUTO: How does Colorado vote?

MR. BRAZIL: Aye.

MS. MITCHELL: Aye.

MR. RIZZUTO: Scott voted "Aye" before you, Rebecca. Sorry. Okay.

MS. MITCHELL: Scott can have it.

MR. RIZZUTO: That passes. Next issue.

MS. MITCHELL: The next issue would be that I would move to recommend ARCA approve the Fiscal Year 2020-2021 auditor's report and authorize Stephanie Gonzales to sign the engagement letter for the auditor's services.

MR. RIZZUTO: Okay. Motion's been made. Second?

MR. HAYZLETT: Second.

MR. RIZZUTO: Second by Randy. How does Kansas vote?

MR. LEWIS: Kansas votes "Aye."

MR. RIZZUTO: How does Colorado vote?

MR. MALONE: Aye.

MR. RIZZUTO: Okay. Lane Malone. That passes, and that actually will become a new exhibit. Which would be H, according to my records. I got the thumbs up, so I must be doing something right. Okay. All right. Go ahead, Becky.

MS. MITCHELL: The next would be to recommend ARCA authorize Stephanie Gonzales to sign the Colorado and Kansas USGS Joint Funding Agreements and the Colorado SMS contract for Fiscal Year 2022-2023.

MR. RIZZUTO: Okay. Motion's made. Second?

MR. MALONE: Aye.

MR. RIZZUTO: Lane. How does Kansas vote?

MR. LEWIS: Kansas votes "Aye."

MR. RIZZUTO: How does Colorado vote?

MR. BRAZIL: Aye.

MS. MITCHELL: Aye.

MR. RIZZUTO: Scott -- Scott got you. Okay.

MS. MITCHELL: Perfect. I love it. Go, Scott, go.

The next would be to recommend ARCA approve the Fiscal Year 2022-2023 budget and assessment, and I believe that will also be an exhibit.

MR. RIZZUTO: Correct. Second?

MR. HAYZLETT: Second.

MR. RIZZUTO: Second, Randy. How does Kansas vote?

MR. LEWIS: Kansas votes "Aye."

MR. RIZZUTO: How does Colorado vote?

MR. BRAZIL: Aye.

MR. RIZZUTO: Scott Brazil votes "Aye" and you -- it passes. That will become Exhibit I. Okay. Continue.

MS. MITCHELL: The next is to recommend and move approval for the resolution titled *Regarding the Special Engineering Committee for Years 2022 and 2023*.

MR. RIZZUTO: Okay. Motion.

MR. DUMLER: Second.

MR. RIZZUTO: Second, Troy?

MR. DUMLER: Yep.

MR. RIZZUTO: How does Kansas vote?

MR. LEWIS: Aye.

MR. RIZZUTO: How does Colorado vote?

MR. MALONE: Aye.

MS. MITCHELL: Aye.

MR. RIZZUTO: Lane -- Lane is one step ahead of you. We'll give you a chance before this is over.

MS. MITCHELL: I'm giving the rest of them to them.

MR. RIZZUTO: Okay. That passes.

MS. MITCHELL: The next is to recommend and move ARCA approve the following -- or following the -- the slate of officers that were proposed for 2022, so Vice-Chair, Randy Hayzlett; Recording Secretary and Treasurer, Stephanie Gonzales; Operations Secretary, Bill Tyner; Assistant Operations Secretary, Kevin Salter.

MR. RIZZUTO: Okay. Motion has been made. Second?

MR. DUMLER: Second.

MR. RIZZUTO: Troy. How does Kansas vote?

MR. LEWIS: Aye.

MR. RIZZUTO: How does Colorado vote?

MR. MALONE: Aye.

MR. RIZZUTO: Okay. Lane votes "Aye" for Colorado, so that passes. Continue, Becky.

MS. MITCHELL: The next would be to move the recommendation that a committee be appointed to plan the celebration for the 75th anniversary of the Compact and that the committee would work with the federal agencies as well to propose -- and propose the budget for the celebration.

MR. RIZZUTO: Okay. Second?

MR. DUMLER: Second.

MR. RIZZUTO: Troy. How does Kansas vote?

MR. LEWIS: Aye.

MR. RIZZUTO: How does Colorado vote?

MR. BRAZIL: Aye.

MR. RIZZUTO: Scott? Okay. Aye? That passes. Becky, you're running out of chances to vote for Colorado, but we'll give you one before we finish.

MS. MITCHELL: Oh, I get this last one, guys.

MR. RIZZUTO: Okay.

MS. MITCHELL: So the final recommendation was to move ARCA approve the dates of December 7th, 2022 for the committee meetings and December 8th, 2022 for the annual meeting, both meetings to be held in Lamar, Colorado.

MR. RIZZUTO: Okay. Motion has been made. Second?

MR. DUMLER: Second.

MR. RIZZUTO: Troy. How does Kansas vote?

MR. LEWIS: Aye.

MR. RIZZUTO: And, Becky, how does Colorado vote?

MS. MITCHELL: Aye.

MR. RIZZUTO: Okay. Passes. Okay. Any other report out of committee? Okay. All right. So, with that, we will move on to any new business.

MS. MITCHELL: There is the addition of 11.A, the John Van Oort letter, and 11.B, the Roy Vaughan recognition.

MR. RIZZUTO: Okay. Is there a presentation?

MS. MITCHELL: I would like to be able to read the letter into the record, if at all possible.

MR. RIZZUTO: Okay. Please do that.

MS. MITCHELL: So the subject of the letter is Recognition of Service for John Van Oort, Colorado Division of Water Resources.

To Tammy Van Oort and the Van Oort Family: The Arkansas River Compact Administration (ARCA) would like to formally recognize the dedication and beneficial impact to the business of ARCA and water users in Colorado and Kansas exhibited by John Van Oort.

John was an incredible individual whose daily work was impactful to numerous citizens of southeastern Colorado and southwestern Kansas through his efforts to ensure that operation of the

Colorado-Kansas Compact Reservoir (John Martin Reservoir) was done properly and that water rights in Colorado were properly administered.

His work life touched the lives of dozens of individuals -- I'd say more than that -- from Colorado Division of Water Resources and Kansas Division of Water Resources, as well as the various Compact representatives, State Engineers from Colorado and Chief Engineers from Kansas who interacted with him during his 17-year career with Colorado DWR during Compact meetings and through more frequent meetings throughout the years.

It is with deep sorrow that we mourn the recent passing of John, but with great honor that we memorialize his accomplishments and express our thanks for the relationships he built over the years.

Sincerely, from you, James Rizzuto.

MR. RIZZUTO: Thank you, Becky.

MS. MITCHELL: And on that note, I just, I want to say how kind John was to me and open, and I think Bill touching on the Lord must have had some water problems, and I -- I would agree, and there's no one more capable to handle it than John, so he will definitely be missed. I think he'll often be

missed this time of year for sure, and his -- his sense of humor, like our hydrology, was often dry, but he was incredibly welcoming, and so I -- I want to express my condolences, primarily to the family, but also to Division of Water Resources of Colorado. It's been an incredibly hard thing for them, so thank you all for still pulling this together at this time, so our work has not faltered and John would be proud.

MR. RIZZUTO: Thank you, Becky. Well done. Just a question. Could this be or should this be an exhibit on its own? I think it's that important.

MR. LEWIS: Mr. Chairman, first of all, I'd like to echo Becky's comments and pass along, on behalf of the State of Kansas, our condolences and not only to the family, but to the staff of Division 2 that worked with him on a daily basis, and our staff that worked with him continually as well.

Obviously can see, from what's been said here today, just the character and type of person that John was and the example he has set for all of us to work together. So with that, Mr. Chairman, I would move that we adopt the letter, make it an exhibit for the record, and authorize you to sign and send

it on our behalf.

MR. RIZZUTO: Okay. Second?

MR. MALONE: Yes.

MR. RIZZUTO: Lane? Okay. How does Kansas vote?

MR. HAYZLETT: Kansas votes "Aye."

MR. RIZZUTO: How does Colorado vote?

MR. BRAZIL: I'll let Becky vote again.

MS. MITCHELL: Aye.

MR. RIZZUTO: Okay. That passes and that will become Exhibit J for the record. And Roy Vaughan? Letter on Roy Vaughan recognition?

MR. TYNER: Do you want it read into the record?

MR. SALTER: Yeah, it would be best.

MR. RIZZUTO: Okay. Hold on.

MR. SALTER: Did you need that up?

MR. TYNER: You want me to do it?

MR. SALTER: Yes, please.

MR. TYNER: Can you bring it up?

MR. SALTER: I will find it.

MR. RIZZUTO: Bill Tyner will -- has asked to read the Roy Vaughan recognition letter into the record.

MR. TYNER: While Kevin's finding that, I

would just mention that for those of you who know Roy, may have met him over the years, he had a great sense of humor and a dry sense of humor and we're going to -- the Bureau of Reclamation is going to miss Roy a lot. Roy was one of the first people -- he was close to John Van Oort as well, so he was one of the first people to reach out to me to say how sorry he was that we'd lost John, but Roy -- Roy is -- he was a significant water knowledge person in the Arkansas Basin and we will miss him as he retires, but he -- he earned a good retirement with the Bureau. Can't find it, Kevin? I should have not shut my computer down. My fault.

MR. SALTER: That's all right. I've got a version here that I believe has red lines, though. Maybe you can clean it up.

MR. TYNER: I might be able to find it real quick, Kevin.

MR. SALTER: No, I've got it. It's just not on the right screen. Does that look like what was --

MR. TYNER: There we go. I think that will work.

MR. SALTER: Like I said, I'm not sure which version that is, Bill.

MR. TYNER: It will be close for the record.

So recognition for Roy Vaughan, U.S. Bureau of Reclamation.

The Arkansas River Compact Administration wishes to recognize Roy Vaughan, who is retiring from the Bureau of Reclamation at the end of this year. Roy has provided updates on Bureau activities, especially related to Pueblo Reservoir, for many years. Roy is friendly, knowledgeable, and always available to answer questions.

Roy's career includes 30 years of service to the water users in the Arkansas Basin. Roy has been the Facility Manager at Pueblo Reservoir after working his way up through the ranks. Roy's role has not been limited to activities at Pueblo Reservoir. He has actively participated in numerous meetings on behalf of the Bureau, including Southeastern Colorado Water Conservancy District meetings and Winter Water Program meetings.

The Colorado Representatives would also note that Roy has been heavily involved in many diverse water user efforts and has worked tirelessly to protect not only the Bureau's interests but also agricultural, recreational and municipal water users

that involve the various aspects of the Fryingpan-Arkansas Project. The USBR's cooperative effort associated with the Voluntary Flow Management Program, under the direction of Roy, times the movement of transmountain project water deliveries down to Pueblo Reservoir to enhance both the recreational interests of the rafting industry and the development of the longest river segment of gold medal fishery in water in Colorado.

The members of the Arkansas River Compact Administration express their gratitude to Roy Vaughan for his service and wish him the very best in retirement.

I believe this one is also for your signature, Chairman Rizzuto.

MR. RIZZUTO: Okay. Thank you, Bill.

MR. LEWIS: Mr. Chairman, I would move that we adopt the recognition for Roy Vaughan and authorize you to send a letter congratulating him on his retirement.

MR. RIZZUTO: Okay. Second?

MR. MALONE: Second.

MR. RIZZUTO: Lane. All right. How does Kansas vote?

MR. LEWIS: Aye.

MR. RIZZUTO: How does Colorado vote?

MS. MITCHELL: Aye.

MR. RIZZUTO: Okay. That passes and that will become Exhibit K.

All right. Anything else, Becky, from your standpoint, or Randy?

MS. MITCHELL: No.

MR. RIZZUTO: Okay. All right. Any new business to come before the commission? Okay. Public comment? Any public comment? Any commissioner want to say anything before we finish up here?

Hearing none, I will say one thing. Thanks to everyone who did attend in person, as well as virtually, and thanks to everyone who put the technology together to bring us all into the meeting during the course of the past couple days.

Thanks to Kansas for hosting us and the staff here at Kansas who put the meetings together and, as I always say at the end of the meeting, because it's close to Christmas, Merry Christmas, Happy New Year, Happy Holidays, and Happy Hanukkah to everyone and, most importantly, stay healthy and safe and look forward to seeing you in Lamar.

So, with that, a motion to adjourn. Troy?

MR. DUMLER: So move.

MR. RIZZUTO: Okay. Second?

MR. MALONE: Second.

MR. RIZZUTO: Second, Lane. Okay. How does Kansas vote?

MR. LEWIS: Absolutely yes.

MR. RIZZUTO: All right. Colorado?

MS. MITCHELL: Yes.

MR. RIZZUTO: Okay. We are adjourned at 12:40 p.m.

(Proceedings concluded at 12:40 p.m. Central Standard Time.)

STATE OF KANSAS)

COUNTY OF RENO)

This is to certify that I, Lee Ann Bates, a Certified Shorthand Reporter in and for the State of Kansas, reported in shorthand the proceedings had at the time and place set forth on the title page hereof and that to the best of my ability, the above and foregoing pages contain a full, true and correct transcript of the said proceedings.

Certified to on this 23rd day of March, 2023.

Lee Ann Bates, CSR, RPR, CRR

ADVANCED COURT REPORTING SERVICES
LEE ANN BATES, CSR, RPR, CRR
27113 West Mills Avenue
Plevna, Kansas 67568
(620) 664-7230

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ARCA 2021 ANNUAL MEETING
EXHIBITS/ATTACHMENTS TO MINUTES

Letter	Description
A.	Attendance List
B.	Adopted Agenda
C.	USGS Presentation
D.	USACE Presentation
E.	USBR Presentation
F.	Ten-year Compact Compliance Accounting Table
G.	Committee Reports
H.	Auditor's Report
I.	FY2022-2023 ARCA Budget
J.	Recognition of Service for John Van Oort
K.	Recognition of Service for Roy Vaughn

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Exhibit A

Annual Meeting

December 9, 2021

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ATTENDANCE LIST

2021 ARKANSAS RIVER COMPACT ADMINISTRATION ANNUAL MEETING

Thursday, December 09, 2021, 9:00 A.M. (CST), Garden City, Kansas

NAME	REPRESENTING	ADDRESS	PHONE	EMAIL
Stephanie Gonzales	ARCA	PO Box 97 Granada, CO 81041		
Nabil Shafike	USACE	9101 Jeferson Plz ABQ, NM 87109		
Rachel Duran	KDA-DWR	Garden City, KS	620-276-2901	Rachel.Duran@KS.gov
Dan Steuer	CO Atty Gen		7205086262	
Chris Beightel	KDA DWR	Manhattan	785-564-6659	
Troy Dumler	ARCA - KS	Garden City, KS	620-276-3246	
Kevin Salter	KDA-DWR	Garden City		
Lane Maloney	ARCA	Holly	719-940-0646	
Randy Hayzlett	ARCA	Lakin	620 271-4008	
Kay E Dixon			cell 7856943247	roy.dixon@sbcglobal.net

ATTENDANCE LIST

2021 ARKANSAS RIVER COMPACT ADMINISTRATION ANNUAL MEETING

Thursday, December 09, 2021, 9:00 A.M. (CST), Garden City, Kansas

NAME	REPRESENTING	ADDRESS	PHONE	EMAIL
Carlos Aragon	USACE	4101 Jefferson Plaza Albuquerque NM 87109	505-342-3689	carlos.Aragon@usace.army.mil
Mike Holmberg	USBR	610 Reservoir Rd. Pueblo, CO 81005	719-429-5198	Mholmberg@usbr.gov
Randy Cox	CDWR			
Earl Lewis	KDA-DWR	Manhattan, KS	785-477-5906	Earl.Lewis@KS.GOV
Gil Ramirez	City of Trinidad	3781 AWY 12 Weston, CO	719 680 1432	northlakegr@gmail.com
Rachel Zancanella	CDWR	Pueblo		rachel.zancanella@state.co.us
Steve Kastner	PRWCD	Trinidad CO		prwcd@yahoo.com
LeAnn Bates	Advanced Court Reporting Services	Pleuna KS	620-664-7230	acrskansas@live.com
Bill Tyner	CO Division of Water Res.	Pueblo CO	719-542-3368	bill.tyner@state.co.us
David Brown	Ks. former Commissioner	Garden City KS	620-287-4541	

ATTENDANCE LIST

2021 ARKANSAS RIVER COMPACT ADMINISTRATION ANNUAL MEETING

Thursday, December 09, 2021, 9:00 A.M. (CST), Garden City, Kansas

NAME	REPRESENTING	ADDRESS	PHONE	EMAIL
Kenny Titus	KDA-DWR	Manhattan, KS		
Patty Stapleton	GMD3	GC. KS		
Jason Norquest	GMD3	GC KS		
Tom Stiles	KDHE	Topeka		
Trevor Ahring	GMD3	Garden City		
MARK RUDE	SW KS GMD3	GARDEN CITY		
Scott Brazil	ARCS	Unified		
HUNTER CARSON	U.S. SEN. MORAN	GARDEN CITY		
Kurtis Wiard	KS AG	Topeka		
Andrew Richard	CWCB	Denver, CO		

ATTENDANCE LIST

2021 ARKANSAS RIVER COMPACT ADMINISTRATION ANNUAL MEETING

Thursday, December 09, 2021, 9:00 A.M. (CST), Garden City, Kansas

NAME	REPRESENTING	ADDRESS	PHONE	EMAIL
Bethany Arnold	CO DWR	310 E. Abriendo, Ste B Pueblo, CO		bethany.arnold@state.co.us
Alexandra Torrance	KS DWR		(620) 765-7483	Alexandra.Torrance@ks.gov

ATTENDANCE LIST (ONLINE)
2021 ARKANSAS RIVER COMPACT ADMINISTRATION ANNUAL MEETING
Thursday, December 09, 2021, 9:00 A.M. (CST), Garden City, Kansas

NAME	REPRESENTING	EMAIL
Bill Grasmick		
Brad Lubbers	Lower Arkansas Valley Water	bradlubbers@lowerark.com
Brandon Forbes	USGS	
Brian Macpherson	Colorado Water Conservation Board	brian.macpherson@state.co.us
Brian Sutton	Colorado Division of Water Resources	Brian.Sutton@state.co.us
Chris Gauger	USACE-John Martin Dam	christopher.w.gauger@usace.army.mil
Chris Gnau	Bureau of Reclamation	cgnau@usbr.gov
Chris Woodka	Southeastern Colorado Water	chris@secwcd.com
Dale Book		
Dan Henrichs	Colorado Division of Water Resources	danhenrichscattle@gmail.com
Dan Kirmer	Colorado Parks & Wildlife, JMR State Park	
Dan Steuer	Colorado Attorney General office	daniel.steuer@coag.gov
David Engelhaupt	KDA-DWR	david.engelhaupt@ks.gov
Don Whittemore	Kansas Geological Survey	dwhitt@home.ku.edu
Doug Hollister	Colorado Division of Water Resources	Doug.Hollister@state.co.us
Dustin Ethredge	USGS	ethredge@usgs.gov
Ed Diemer		
Erin Seybold	Kansas Geological Survey	e679s033@ku.edu
Erin Wilson	Wilson Water Group	erin.wilson@wilsonwatergroup.com
Harold "Lee" Crowley	NWS Arkansas-Red River Basin Forecast Center	harold.crowley@noaa.gov
Jack Goble	LAVWCD	jgoble@lowerark.com

ATTENDANCE LIST (ONLINE)
2021 ARKANSAS RIVER COMPACT ADMINISTRATION ANNUAL MEETING
Thursday, December 09, 2021, 9:00 A.M. (CST), Garden City, Kansas

NAME	REPRESENTING	EMAIL
Jacob Olson	Colorado Division of Water Resources	Jacob.Olson@state.co.us
James Paul	NWS Arkansas-Red River Basin Forecast Center	
Jason Ullmann	Colorado Division of Water Resources	
Jeanette Myers	Colorado Division of Water Resources	jeanette.myers@state.co.us
Jeff Montoya	Colorado Division of Water Resources	jeff.montoya@state.co.us
Jessica Woldiuk	Colorado Division of Water Resources	jessica.wodiuk@state.co.us
Joe Regur	Colorado Division of Water Resources	joseph.regur@state.co.us
Julie Knudson	Purgatoire Watershed Partnership	jknudson@purgatoirepartners.org
Kalsoum Abbasi	Colorado Springs Utilities	kabbasi@csu.org
Kara Sobieski	Wilson Water Group	kara.sobieski@wilsonwatergroup.com
Keadron Pearson	Kansas Water Office	keadron.pearson@kwo.ks.gov
Kelley Thompson	Colorado Division of Water Resources	kelley.thompson@state.co.us
Kevin Rein	Colorado Division of Water Resources	kevin.rein@state.co.us
Kim Falen	Corp of Engineers	kimberly.c.falen@usace.army.mil
Lane Letourneau		lane.letourneau@ks.gov
Lonnie Spady	Colorado Division of Water Resources	lonnie.spady@state.co.us
Lori Lest	Colorado DNR	lori.lest@hotmail.com
LTC Patrick Stevens	Corp of Engineers	
Mark Rude	SW KS GMD#3	mrude@gmd3.org
Michael Martinez	USACE-John Martin Dam	
Monica Long	Colorado Division of Water Resources	monica.long@state.co.us

ATTENDANCE LIST (ONLINE)
2021 ARKANSAS RIVER COMPACT ADMINISTRATION ANNUAL MEETING
Thursday, December 09, 2021, 9:00 A.M. (CST), Garden City, Kansas

NAME	REPRESENTING	EMAIL
Nathan Sullivan	USG-Hays, KS	nsullivan@usgs.gov
Philip Reynolds	Colorado Division of Water Resources	philip.reynolds@state.co.us
Phone Attendee 1		
Phone Attendee 2		
Phone Attendee 3		
Phone Attendee 4		
Phone Attendee 5		
Rebecca Mitchell	State of Colorado	Rebecca.Mitchell@state.co.us
Rena Griggs	Colorado Parks & Wildlife SE Region Water Specialist	rena.griggs@state.co.us
Roy Vaughan	Bureau of Reclamation	
Steve Leonhardt	Burns, Figa & Will Attorneys	sleonhardt@bfwlaw.com
Tyler Benton	Colorado Springs Utilities	tbenton@csu.org

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Exhibit B

Annual Meeting

December 9, 2021

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ARKANSAS RIVER COMPACT ADMINISTATION
2021 ANNUAL MEETING
Thursday, Dec. 9, 2021, 9:00 a.m. CST (8:00 a.m. MST)
Clarion Inn, Garden City, KS
DRAFT AGENDA (subject to change)
Presiding: James Rizzuto, Chairman

1. **Call to Order: Chairman, James Rizzuto**

2. **Review and revisions of agenda**

3. **Report of Chair and Vice-Chair**

4. **Reports of Federal Agencies**
   A. U.S. Geological Survey
   B. U.S. Army Corps of Engineers
   C. U.S. Bureau of Reclamation
   D. National Weather Service

5. **Reports from Local Water User and State Agencies**
   A. Southwest Kansas Groundwater Management District #3
   B. Purgatoire River Water Conservancy District
   C. Kansas Geological Survey
   D. Kansas Department of Health and Environment

6. **Compact Compliance / Decree Issues Updates**
   A. Ten-year Compact Compliance Accounting table (2011-2020) – Joint Report of the States
   B. Colorado's PDF (presumed depletion factor) Evaluation

7. **Report of Special Engineering Committee**

8. **Report and Recommendations of Engineering Committee**

9. **Operations Committee**
   A. Operations Secretary Report
   B. Assistant Operations Secretary Report
   C. Offset Account Report
   D. Report and Recommendations from December 8, 2021 meeting

10. **Administrative & Legal Committee**
    A. Recording Secretary and Treasurer Report
    B. Report and Recommendations from December 8, 2021 meeting

11. **New Business**
    A. John Van Oort letter / B. Roy Vaughn recognition
12. **Public Comment**

13. **Adjourn**

Exhibit B

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Exhibit C

Annual Meeting

December 9, 2021

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USGS
science for a changing world

Streamflow Conditions in the Arkansas River Basin WY 2021

In cooperation with the Arkansas River Compact Administration

Dustin Ethredge
ethredge@usgs.gov
USGS Colorado Water Science Center
December 9, 2021

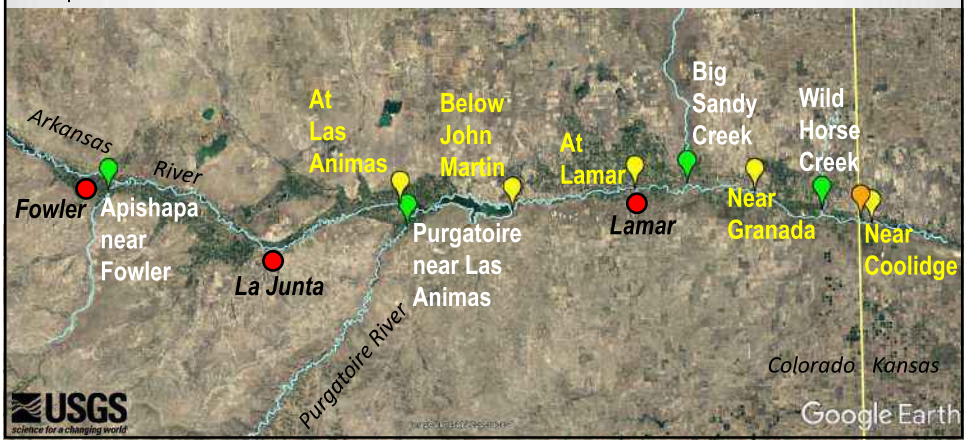
Purgatoire near Las Animas

1

USGS/ARCA Cooperative Program 2021

10 streamgages; Fowler, CO – Coolidge, KS

- 5 Mainstem Arkansas sites
- Frontier Ditch near Coolidge
- 4 Tributaries



2

WY 2021 streamflow conditions

WY 2021 (Oct 1, 2020 – Sept 30, 2021)

Hydrographs for 6 sites

- 2 sites upstream of JMR
- 4 sites downstream of JMR

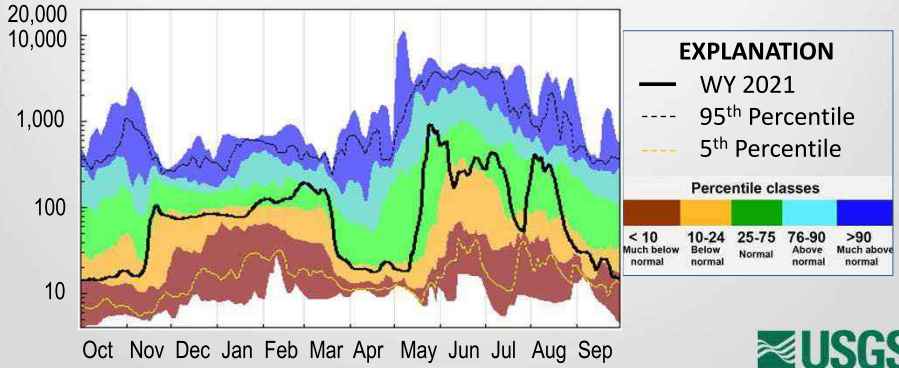
3

WY 2021 streamflow conditions

Arkansas River at Las Animas

93,970 Acre-Feet, 49% of average

7-day average flow, cubic feet per second



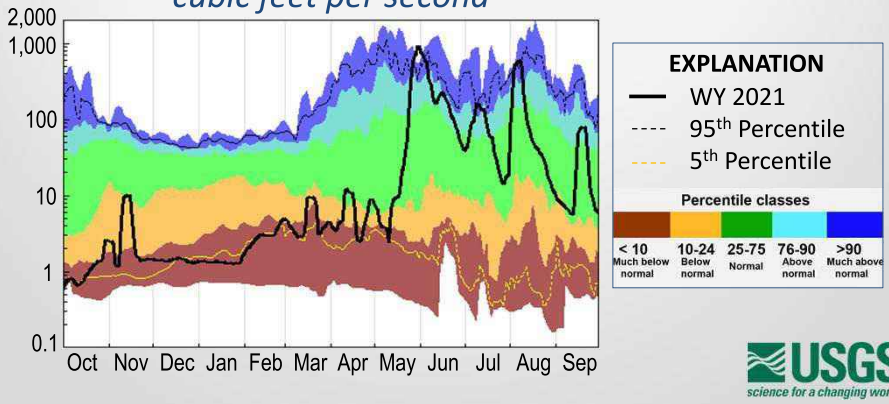
4

WY 2021 streamflow conditions

Purgatoire River near Las Animas

41,770 Acre-Feet, 98% of average

7-day average flow, cubic feet per second



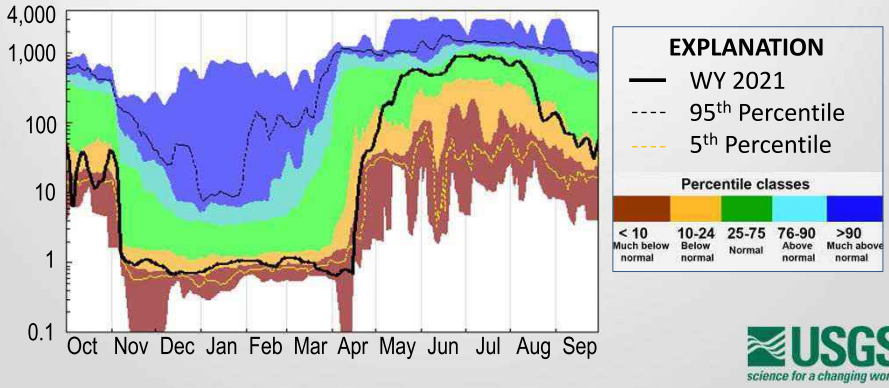
5

WY 2021 streamflow conditions

Arkansas River below John Martin Reservoir

143,400 Acre-Feet, 71% of average

7-day average flow, cubic feet per second



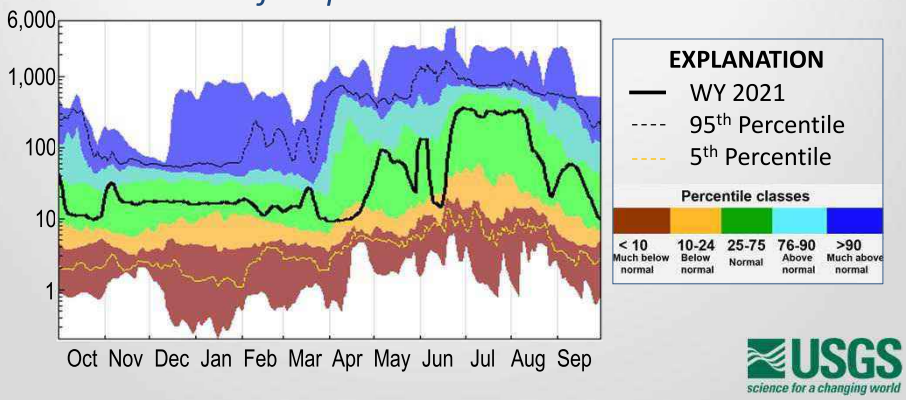
6

WY 2021 streamflow conditions

Arkansas River at Lamar

49,090 Acre-Feet, 61% of average

7-day average flow,
cubic feet per second



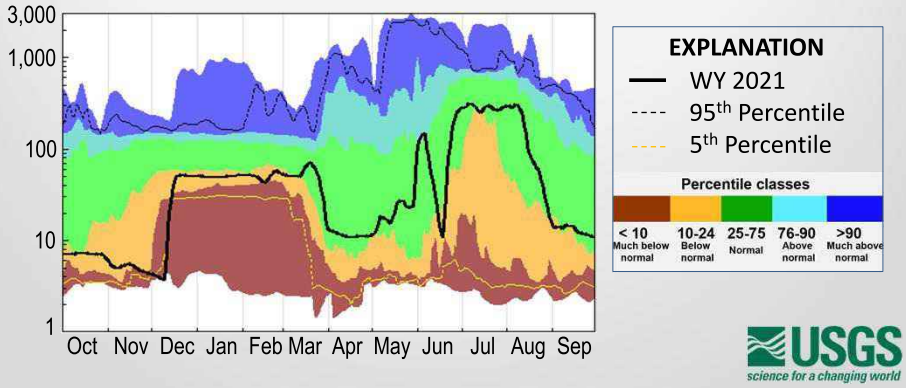
7

WY 2021 streamflow conditions

Arkansas River near Granada

47,570 Acre-Feet, 41% of average

7-day average flow,
cubic feet per second



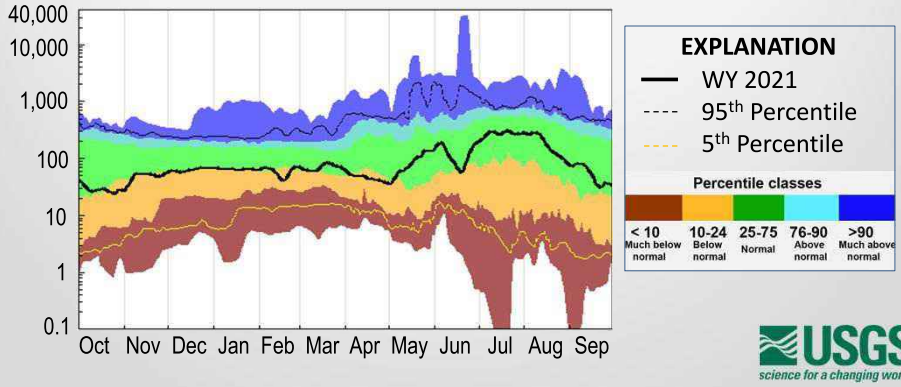
8

WY 2021 streamflow conditions

Arkansas River near Coolidge, KS

67,840 Acre-Feet, 47% of average

7-day average flow, cubic feet per second



USGS science for a changing world

9

WY 2021 streamflow conditions

Station	WY21 Annual Flow, in ac-ft	Percent of Average
Apishapa River near Fowler	10,140	60%
Big Sandy Creek near Lamar	2,900	29%
Wildhorse Cr. above Holly (Oct, Apr-Sept)	2,130	61%
Frontier Ditch near Coolidge	5,000	59%

USGS science for a changing world

10

Summary

- WY21 streamflow for the two major inflows to JMR was 49% of average in the Arkansas River at Las Animas and 98% in the Purgatoire River
- WY21 total annual flow was only higher than WY20 flows at two sites (Apishapa and Purgatoire nr Las Animas)
- Downstream of JMR, mainstem flow at 4 sites ranged from 41% to 71% of average, and was 47% of average at Coolidge, KS

11

Summary of streamflow at USGS/ARCA stations
Water Year 2021 (Oct 1, 2020 - Sept 30, 2021)

Station Number	Station Name	Period of record included in the long-term average (water years)	WY2021 Annual total flow, in acre-feet	WY2020 Annual total flow, in acre-feet	2021 as % of 2020	2021 as % of long-term average
07119500	Apishapa River near Fowler	1923-25, 1940-2021	10,140	9,290	109%	60%
07124000	Arkansas River at Las Animas	1975-2021	93,970	105,600	89%	49%
07128500	Purgatoire River near Las Animas	1978-2021	41,770	7,770	538%	98%
07130500	Arkansas River below John Martin Reservoir	1949-2021	143,400	155,600	92%	71%
07133000	Arkansas River at Lamar	1949-55, 1960-2021	49,090	64,030	77%	61%
07134100	Big Sandy Creek near Lamar	1969-82, 1996-2021	2,900	7,550	38%	29%
	Base flow	1996-2021	1,770	6,210	29%	24%
	Above Base flow	1996-2021	1,130	1,340	84%	33%
07134180	Arkansas River near Granada	1982-2021	47,570	66,200	72%	41%
07134990	Wild Horse Cr. above Holly, October, April-Sept	2002-2021	2,130	2,660	80%	61%
	April – September	2002-2021	2,070	1,600	129%	75%
07137500	Arkansas River near Coolidge, KS	1951-2021	67,840	91,200	74%	47%
07137000	Frontier Ditch near Coolidge, KS	1951-2021	5,000	7,330	68%	59%

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Exhibit D

Annual Meeting

December 9, 2021

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2021 ARCA ANNUAL MEETING
ARKANSAS RIVER BASIN REPORT

LTC Patrick M. Stevens V, PE, PMP
District Commander
South Pacific Division/Albuquerque District
9 December 2021

US Army Corps of Engineers

Exhibit D

TOPICS

- Compact Year 2021 Water Management
- Arkansas Basin Water Quality Monitoring
- Operations and Maintenance
- Civil Works Program
- Emergency Management Coordination

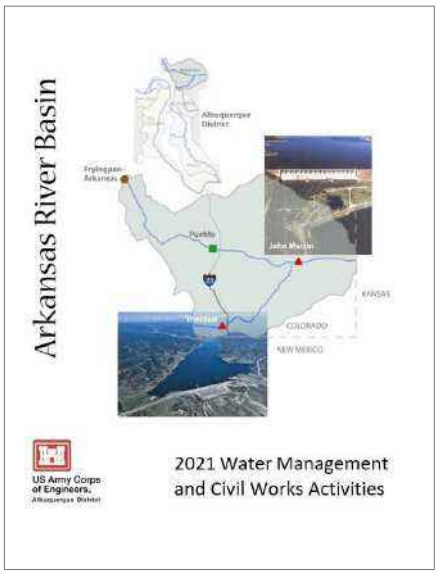
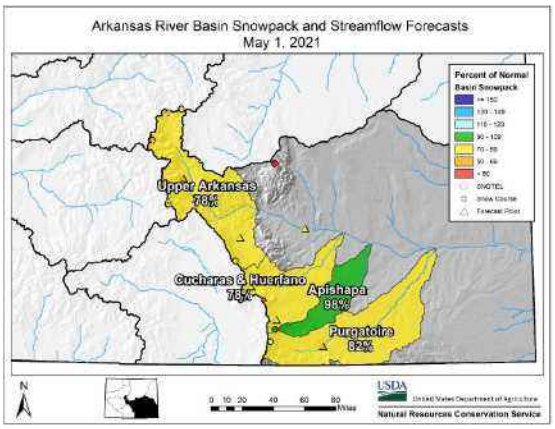


Exhibit D

COMPACT YEAR 2021 WATER MANAGEMENT
Snowpack and Runoff

May 1st Natural Resources Conservation Service Forecast

- Upper Arkansas Basin snowpack: 78% of median
- Purgatoire Basin snowpack: 82% of median
- Basin total: 76% of median



Trinidad Dam and Lake

- Forecast runoff inflow: 25,000 ac-ft
- Actual runoff inflow: 45,910 ac-ft (125% of average)

John Martin Dam and Reservoir

- NRCS does not forecast runoff inflow
- National Weather Service: 89,000 ac-ft
- Actual runoff inflow: 87,000 ac-ft (51% of average)

Exhibit D

COMPACT YEAR 2021 WATER MANAGEMENT
Trinidad Dam and Lake

Compact Year 2021 Water Management

- Computed inflow: 58,000 ac-ft
- Release: 50,580 ac-ft
- Maximum storage: 31,260 ac-ft
- Minimum storage: 15,550 ac-ft
- End of Compact Year storage: 20,230 ac-ft
- During the May 22-23 rainstorm event, releases from the dam were reduced to prevent downstream flooding
- No evidence of zebra or quagga mussels

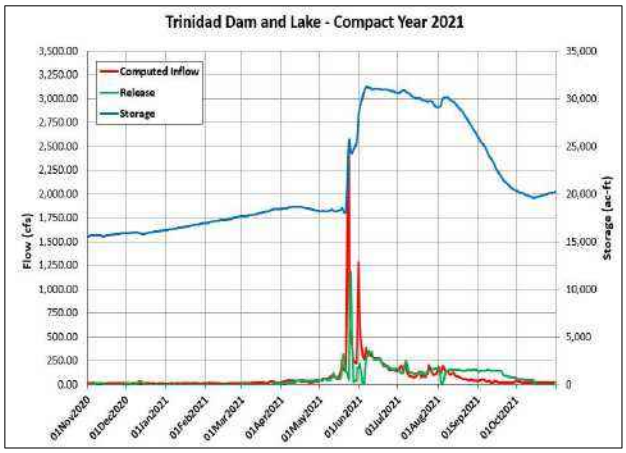


Exhibit D

COMPACT YEAR 2021 WATER MANAGEMENT
John Martin Dam and Reservoir

Compact Year 2021 Water Management

- Computed inflow: 143,170 ac-ft
- Release: 145,410 ac-ft
- Maximum storage: 70,260 ac-ft
- Minimum storage (also end of year): 16,590 ac-ft
- No Flood Risk Management Operations
- No evidence of zebra or quagga mussels

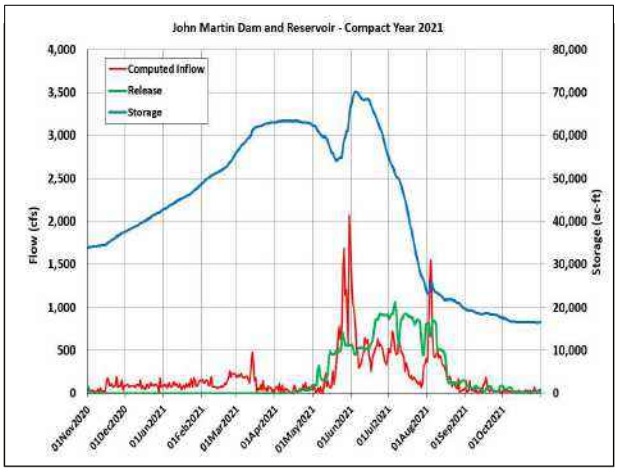


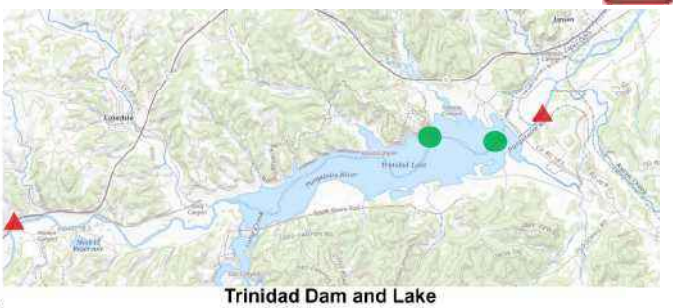
Exhibit D

ARKANSAS WATER QUALITY MONITORING

● Reservoir Stations (2012 – Current)

Monthly during ice-free period
- Vertical profiles
  - Temperature
  - Dissolved oxygen
- Surface measurements
  - Turbidity
  - pH
  - Specific conductance
- Secchi depth
- Zebra and quagga mussel (June-October)

▲ Riverine Stations (2020 – 2025)
- 15-minute interval
  - Water Temperature
  - Dissolved oxygen
  - Turbidity
  - pH
  - Specific conductance
- Monthly anions/cations and total suspended sediment



Trinidad Dam and Lake

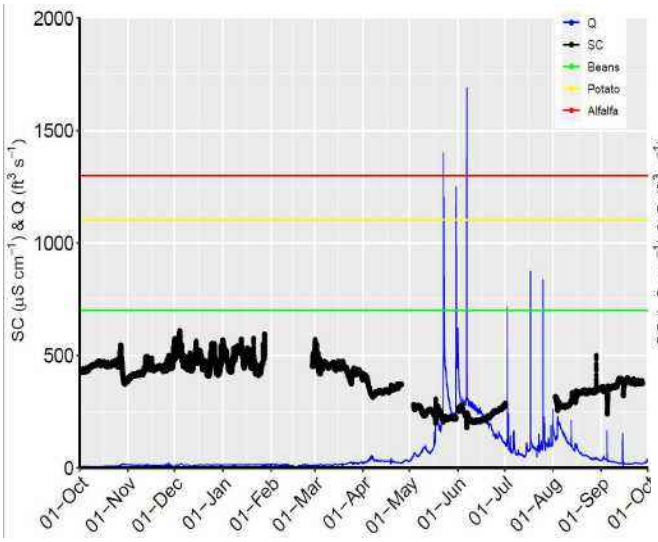
John Martin Dam and Reservoir

Exhibit D

ARKANSAS WATER QUALITY MONITORING DATA

Discharge, Specific Conductance, and Crop thresholds

Upstream of Trinidad dam (Madrid Gauge)



Downstream of Trinidad Dam

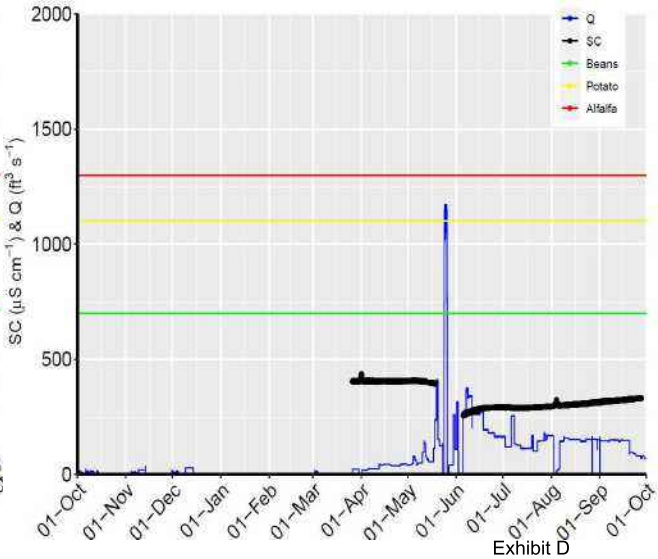
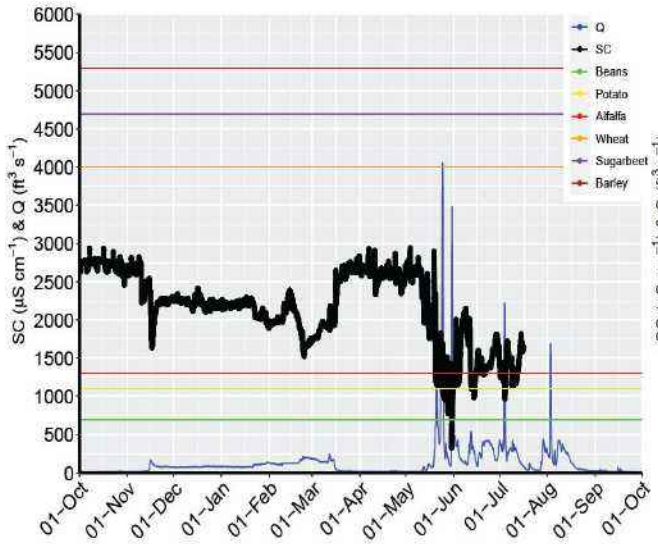


Exhibit D

ARKANSAS WATER QUALITY MONITORING DATA

Discharge, Specific Conductance, and Crop thresholds

Upstream of John Martin Dam



Downstream of John Martin Dam

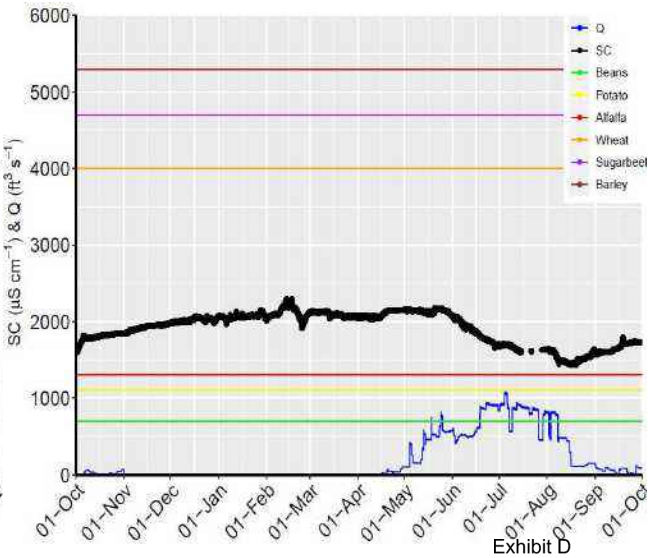


Exhibit D

OPERATIONS AND MAINTENANCE

John Martin Dam and Reservoir

- Grouting gallery sump pump
  The primary and backup sump pumps at the north end of the grouting had to be repaired.
- Field investigation
  Sediment samples were collected to support future dredging upstream of the dam.

Trinidad Dam and Lake

- Emergency Power

A new heavy equipment shed was constructed in the maintenance yard. This structure also houses the new projects emergency generator.

- Maintenance Contracts

Contracts were awarded to replace the sump pump in the dam tower and to replace the packing glands on the two pairs of service and emergency gates.

CIVIL WORKS
SECTION 206- ECOSYSTEM RESTORATION

Spring Creek, Colorado

- The purpose of the project is to restore a wetland and bird sanctuary formerly managed by the Audubon Society.
- In FY21, funds were used to complete the Federal Interest Determination (FID).
- Working on drafting the Feasibility Cost Share Agreement (FCSA)
- Feasibility study is expected to start in FY22

Project site location in Colorado Springs, CO. Former wetland outlined in light blue.

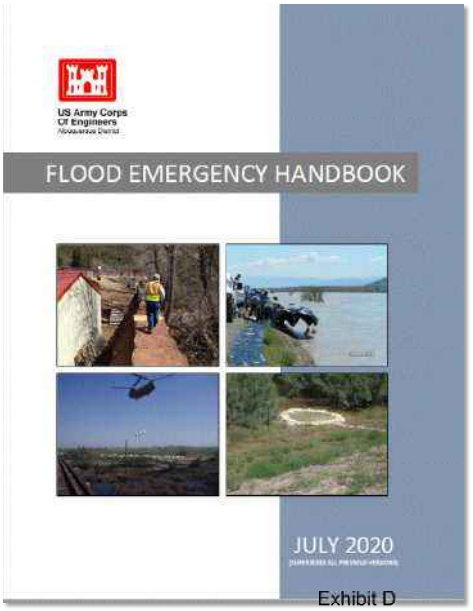
Exhibit D

EMERGENCY MANAGEMENT COORDINATION

Public Law 84-99 authorized USACE to assist state and local governments before, during, and after flood events.

Assistance can be obtained by contacting:

Albuquerque District, U.S. Army Corps of Engineers, Emergency Management Branch, Operations Office
cespa-eoc@usace.army.mil
505-342-3686



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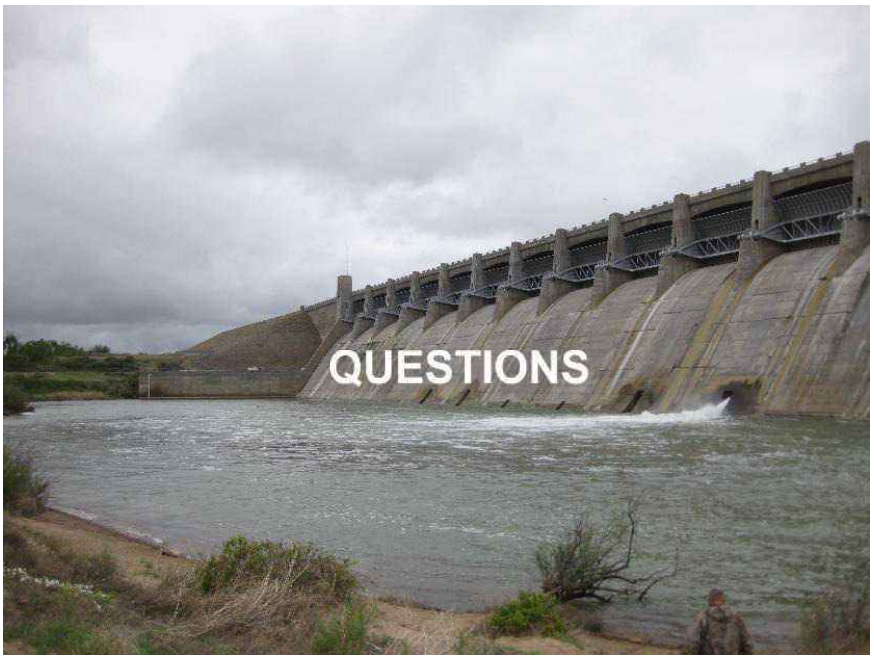

Exhibit D

Arkansas River Basin

US Army Corps of Engineers®
Albuquerque District

2021 Water Management and Civil Works Activities

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Contents

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1. General

During Compact Year 2021 (1 November 2020 – 31 October 2021), activities of the U.S. Army Corps of Engineers (USACE), Albuquerque District, in the Arkansas River Basin consisted of water management, operations and maintenance, civil works, flood risk management, compliance with Section 404 of the Clean Water Act, and post wildfire flooding concerns.

2. Water Management Operations

In 2021, the Arkansas River Basin snowmelt forecast was well below normal throughout much of the basin. As of May 1st, the overall basin wide snowpack was reported as below average at 76% of median. The Upper Arkansas Basin reported 78% of median, the Cucharas and Huerfano basins reported 78% of median, the Apishapa Basin reported 98% of median, and the Purgatoire River Basin reported 82% of the median snowpack.

Table 1 compares the Natural Resources Conservation Service's (NRCS) forecast runoff to the actual measured runoff. The NRCS May 1st forecast predicted streamflow to be 69% of average for the Arkansas River above Pueblo Reservoir, and 68% of average for the Purgatoire River at Trinidad Reservoir. Actual observed snowmelt runoff (native) inflow to Pueblo Reservoir was 49% of the 30-year average used by NRCS, actual observed snowmelt and storm runoff inflow to Trinidad Reservoir was 125% of the 30-year average, and actual observed snowmelt runoff inflow to John Martin Reservoir was 51% of average.

Table 1. May 1, 2021, NRCS/NWS Forecast and Actual Runoff

Arkansas River Basin May 1st Most Probable Snowmelt Runoff Forecast (50% Exceedance)				
Measurement Location	Snowmelt Runoff (x 1,000 Acre-Feet)		Percent of Average	
	May Forecast	Actual	May Forecast	Actual
Arkansas River above Pueblo (April – July)	250	176.8 [1]	69%	49%
Purgatoire River at Trinidad (March – July)	25	46.3 [2]	68%	125%
John Martin Dam and Reservoir (April – July)	89 [3]	87.0 [2]	52% [3]	51%

[1] Data Source: Colorado Division Water Resources

[2] Data Source: U.S. Army Corps of Engineers

[3] National Weather Service inflow forecast for John Martin Dam and Reservoir

a. Trinidad Dam and Reservoir

For Compact Year 2021, the reservoir surface elevation started at 6,176 ft with storage of 15,549 acre-feet and ended at 6,183 ft with storage of 20,226 acre-feet, a net change of +7 ft in elevation and +4,677 acre-feet in storage. Storage peaked at 31,264 acre-feet (elevation of 6,197.03 ft) on 6 June 2021. The maximum daily inflow was 2,553.5 cubic feet per second (cfs) on 23 May 2021 and the maximum daily release was 1175.5 cfs on 25 May 2021. The total inflow for Trinidad Reservoir was 58,007 acre-feet and total outflow was 50,582 acre-feet. During the 22-23 May 2021 rainstorm event, dam releases were reduced to prevent downstream flooding. Figure 1 illustrates daily release, storage and computed inflow to Trinidad reservoir.

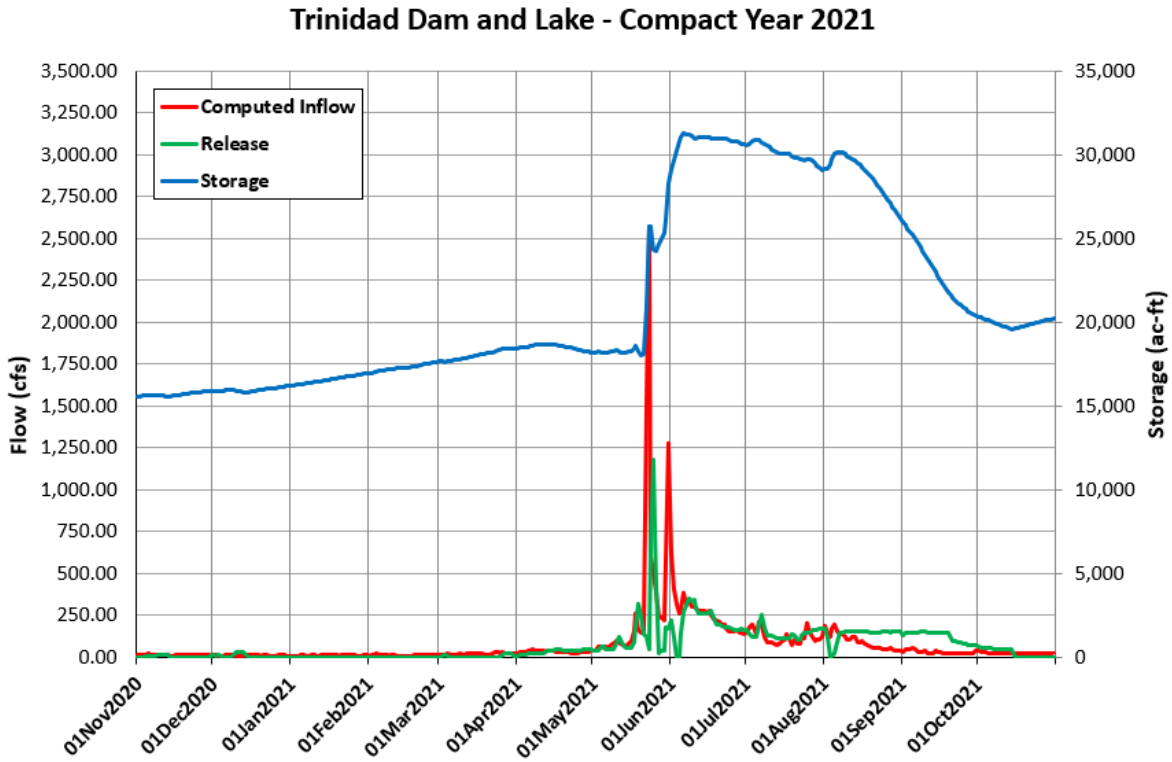

Figure 1: 2021 Trinidad Dam and Reservoir Water Operations

b. John Martin Dam and Reservoir

For Compact Year 2021, the reservoir surface elevation started at 3,806.43 ft with storage of 33,919 acre-feet and ended at 3,799.76 ft with storage of 16,590 acre-feet, a net change of -6.67 ft in elevation and -17,329 acre-feet in storage. Storage peaked at 70,260 acre-feet (elevation of 3,816.55 ft) on 4 June 2021. The maximum daily inflow was 2,067 cfs on 30 May 2021 and the maximum daily release was 1,061 cfs on 6 July 2021. The total computed inflow for John Martin Reservoir was 143,170 acre-feet and total release was 145,410 acre-feet. USACE did not operate for flood control at John

Martin Dam and Reservoir in 2021. Figure 2 illustrates daily release, storage and computed inflow to John Martin Reservoir.

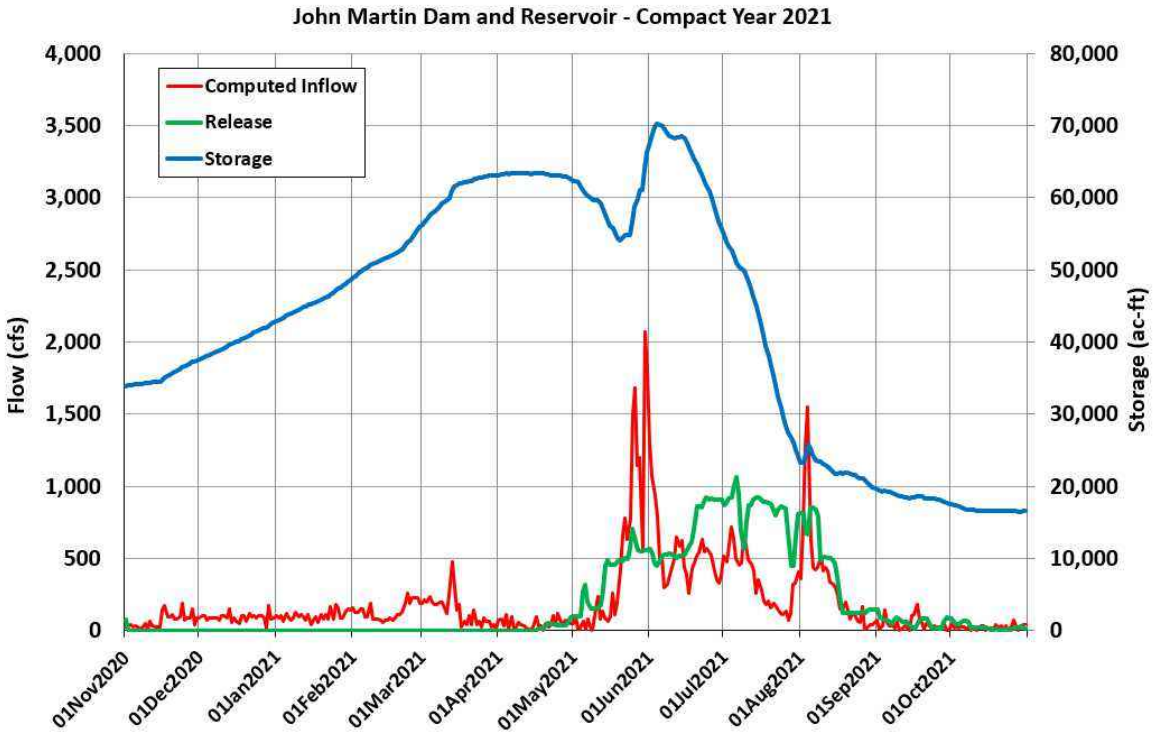

Figure 2: 2021 John Martin Dam and Reservoir Water Operations

c. Water Quality

USACE continued water quality monitoring program in Compact Year 2021. Project staff have been collecting monthly water quality data from USACE reservoirs since 2012, which is forwarded to environmental staff in USACE's Albuquerque District Office for review and entry into the water quality database. At the locations shown below within Trinidad Reservoir and John Martin Reservoir (Figures 3 & 4), staff collect surface measurements of turbidity, pH, and specific conductance, as well as Secchi depth. Data on temperature and dissolved oxygen are collected through vertical profiles through the water column, and zebra and quagga mussel monitoring typically occurs from June through October.

In Compact Year 2020, the Albuquerque District entered into cooperative agreements to install riverine water quality stations upstream and downstream of Trinidad Reservoir and John Martin Reservoir at the locations indicated by red dots (Figures 3 & 4). These sites will collect data on water temperature, dissolved oxygen, turbidity, pH, and specific conductance at 15-minute intervals. Total suspended sediment and sampling of anions and cations will be completed monthly at these riverine stations. Monitoring at most of these riverine stations began in July and August of 2020, and this project is currently funded to provide riverine monitoring through 2025. During compact year 2021 data was collected at all water quality sites.

The primary goals of this expanded water quality monitoring program are to identify seasonal and other trends in streamflow and reservoir water quality, and to help assess the impacts of Trinidad Reservoir and John Martin Reservoir on the Purgatoire and Arkansas Rivers. The program will also generate and disseminate reviewed real-time and high-frequency water quality data and determine the suitability of using turbidity and streamflow records to calculate high-frequency suspended sediment concentrations and loads upstream and downstream of the reservoirs. The data collected through this program will be reviewed and compiled into a database that will be available through the Albuquerque District Water Management Section. Data requests can be sent to Justin Reale.

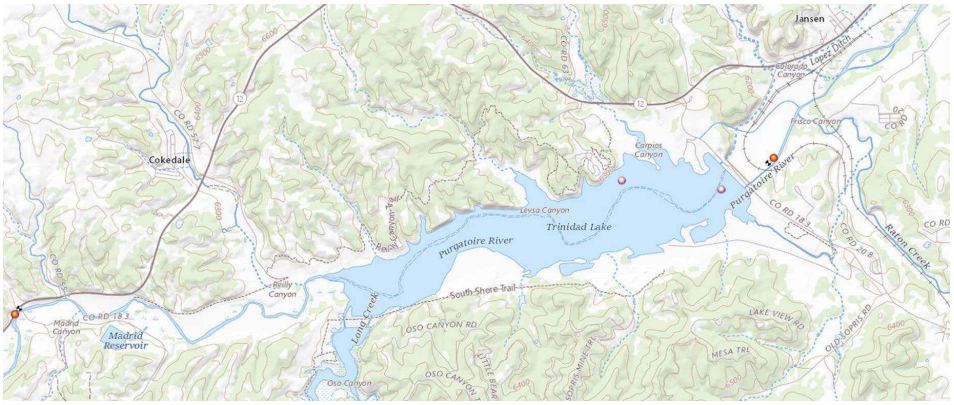

Figure 3: Water Quality monitoring stations at Trinidad Dam and Reservoir

Figure 4: Water Quality monitoring stations at John Martin Dam and Reservoir

Figures 5 and 6 show specific conductance compared to river flows for water year 2021 above and below both Trinidad and John Martin Dams. The plots also include crop threshold values for a variety of crops. In water year 2021, the specific conductance at Trinidad dam contains much less dissolved salt and minerals, because the majority of the flows come from snowmelt and rainfall. At John Martin, flows exhibit higher specific conductance due to dry conditions throughout the basin. Most probably during wet years, specific conductance would be lower than water year 2021.

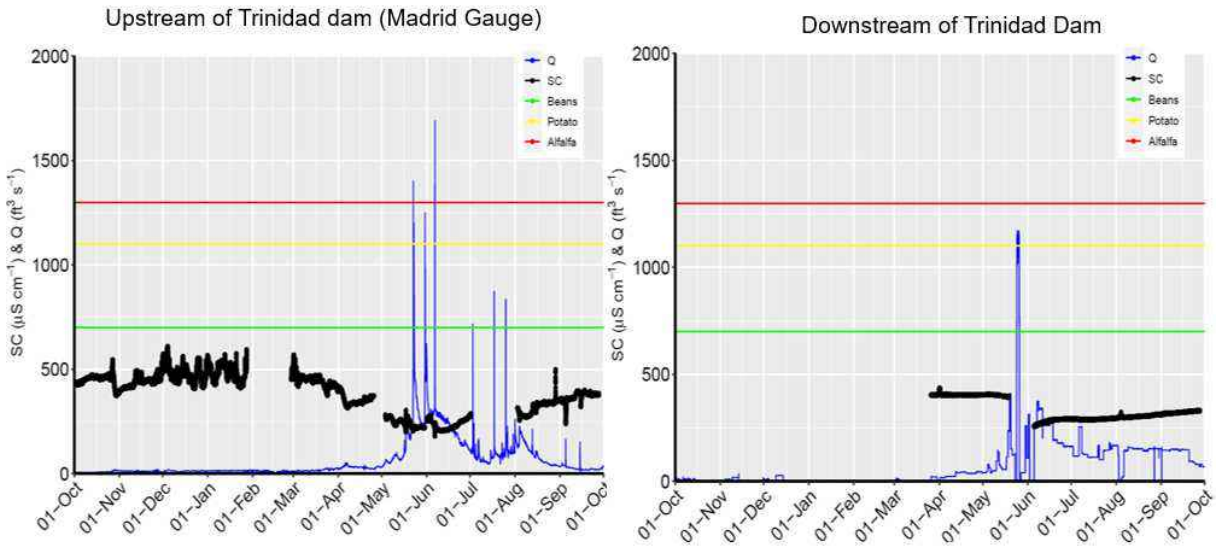

Figure 5: Water Quality monitoring data at Trinidad Dam

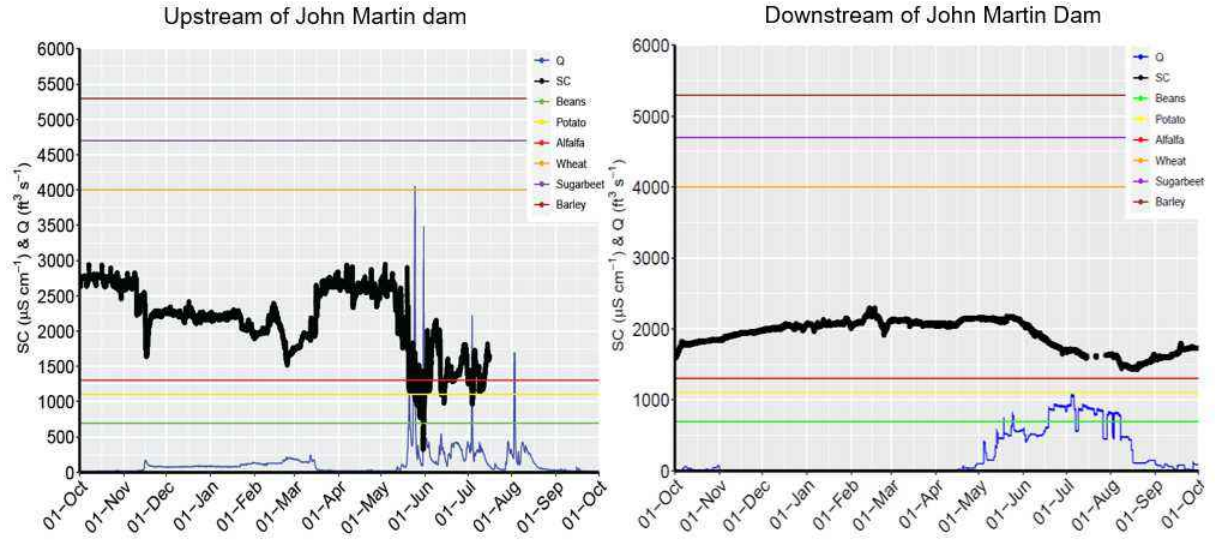

Figure 6: Water Quality monitoring data at John Martin Dam and Reservoir

3. Operations and Maintenance

a. Trinidad Dam and Reservoir

During 2021, several projects were completed and/or awarded at Trinidad Dam and Reservoir as described below:

a. A new emergency backup generator was installed at the administrative office.

b. A new heavy equipment shed was constructed in the maintenance yard (Figure 7). The structure also houses the new emergency generator.

c. Wireless flood sensors were installed upstream of the dam and at Rule Creek to provide early warning detection for significant water events from a

previously ungauged part of the watershed. This is part of a system capability testing program and future development is planned.

d. A contract was awarded to replace the sump pump in the dam tower. The existing sump pump, while still functional, is original to the project and repair parts are no longer readily available. Installation of the new system, which also includes a high water alarm, is planned for early 2022.

e. A contract was awarded to replace the packing glands on the two service and two emergency gates. The work is scheduled for early 2022 before irrigation season begins.

Figure 7: New heavy equipment shed and emergency generator storage at Trinidad Dam

b. John Martin Dam and Reservoir

During 2021, operations and maintenance projects were completed at John Martin Dam and Reservoir as described below:

a. Significant troubleshooting and repairs were made to the sump pumps on the north end of the grouting gallery (Figure 8). Additional repairs to the sump system will be made in 2022 to prevent accumulation of water within the gallery when the pool elevation is high.

b. Pressure gauges were installed on key foundation drains throughout the grouting gallery to gather data on uplift pressures beneath the concrete dam. The data is being used to evaluate the need to install replacement piezometer sensors at key monoliths both upstream and downstream of the dam.

c. Wireless flood sensors were installed directly downstream of the dam and at Rule Creek to provide early warning detection for significant water events and verify downstream flow measurements (Figure 9). This is part of a system capability testing program and future development is planned.

d. Core samples were taken of upstream sediment deposits, and evaluations were conducted in advance of a dredging project to allow for proper placement of

emergency bulkheads required to inspect the outlet conduits.

e. Common operations and maintenance (O&M) items were conducted according to prescribed schedules.

Figure 8: John Martin employee working to replace sump pump gasket.

Figure 9: John Martin employee installing flood sensor downstream of the dam.

4. Civil Works

a. Continuing Authorities Program

The Continuing Authorities Program (CAP) is a group of nine legislative authorities under which the Secretary of the Army, acting through the Chief of Engineers, is authorized to plan, design, and implement certain types of water resources projects without additional project-specific congressional authorization. USACE had one active CAP projects in the Arkansas River Basin in 2021.

Section 205

Section 205 of the 1948 Flood Control Act, as amended, provides authority to USACE to plan and construct small flood damage reduction projects that have not been specifically authorized by Congress. USACE had no active Section 205 projects in the Arkansas River Basin in 2021.

Section 206- Ecosystem Restoration

Section 206 of Water Resources Development Act (WRDA) 1996 provides authority to USACE for aquatic ecosystem restoration projects in areas unrelated to existing USACE water projects. Section 206 projects must improve the environmental quality of the environment, be in the public interest, demonstrate cost effectiveness, and be no more than $10 million in total cost. In fiscal year 2021 (federal), the USACE received "new start" funding, 100% federally funded, to determine if the Spring Creek Section 206 has a federal interest. The Spring Creek Section 206 has determined to have a federal interest in September of 2021. The determination that the project has a federal interest allows the USACE and Sponsor to enter into a feasibility cost share agreement (50/50%). Once the feasibility cost share agreement is signed by both parties, the feasibility study will study will start. The feasibility study will take 3 years to complete. If the results of the feasibility study determines that there is an alternative that is the best buy and in the public interest, then the project will move into the implementation phase project that will have a 65% federal and 35% non-federal cost share.

Section 14

Section 14 of the 1946 Flood Control Act, as amended, provides authority for USACE to plan and construct emergency stream bank protection projects to protect endangered highways, highway bridge approaches, public facilities such as water and sewer lines, churches, public and private nonprofit schools and hospitals, and other nonprofit public facilities. There are no active Section 14 projects in the Arkansas River Basin in 2021.

b. Investigations Program

The USACE Investigations Program includes specifically authorized studies for comprehensive solutions to large complex problems relating to flooding, ecosystem restoration, loss of land and property, floodplain management, and watershed planning and analysis. The Investigations program consists of two phases: the feasibility study phase, and the pre-construction engineering and design (PED) phase. The feasibility study is used to investigate the Federal interest, engineering feasibility, economic justification and environmental acceptability of a recommended water resources project, and results in a feasibility report. The feasibility report is the document on which congressional authorization for PED and Construction is based. During the pre-construction engineering and design phase, development of the first construction contract bidding package can be completed while waiting for congressional construction authorization. If the project is authorized for construction by Congress, USACE and the project sponsor can move forward with the remaining detailed design and construction. USACE had no active Investigations or Construction projects in the Arkansas River Basin in 2021.

5. Flood Risk Management Program

USACE established the National Flood Risk Management Program (FRMP) in May 2006 to integrate and synchronize USACE activities, both internally and with counterpart activities of the Department of Homeland Security, Federal Emergency

Management Agency (FEMA), other Federal agencies, state organizations, and regional and local partners and stakeholders. The USACE Levee Safety Program was authorized in WRDA 2007 and established by the National Levee Safety Act of 2007. The Inspection of Completed Works/Rehabilitation Program (ICW/RP) is the USACE program that provides for the inspection and rehabilitation of Federal and non-Federal flood risk management projects within the ICW/RP (PL8499). For 2021, no active projects in the ICW/RP were removed from the program based on inspection. Additionally, initial levee risk screenings have been performed and their risk characterizations HQ approved for all, except one, USACE constructed levees in the Arkansas watershed. Levee system risk characterizations have been published to the National Levee Database. The one exception is the Pueblo Arkansas River Levee Extension, which ties into Pueblo Arkansas River Levee which is currently finalizing rehabilitation of the levee. Initial risk screening will be completed after rehabilitation is finalized.

The National Levee Database (NLD) is used to track both USACE and Non-USACE levee system inventory and other flood risk management features (Figure 10). The NLD is viewable to the public through the following internet link; https://levees.sec.usace.army.mil/#/. The database contains pertinent information (length, height, crest width, etc.) concerning levee systems as well as flooding risk information for the systems. The database viewer uses both an interactive text search and graphical search functions to locate levee systems of interest.

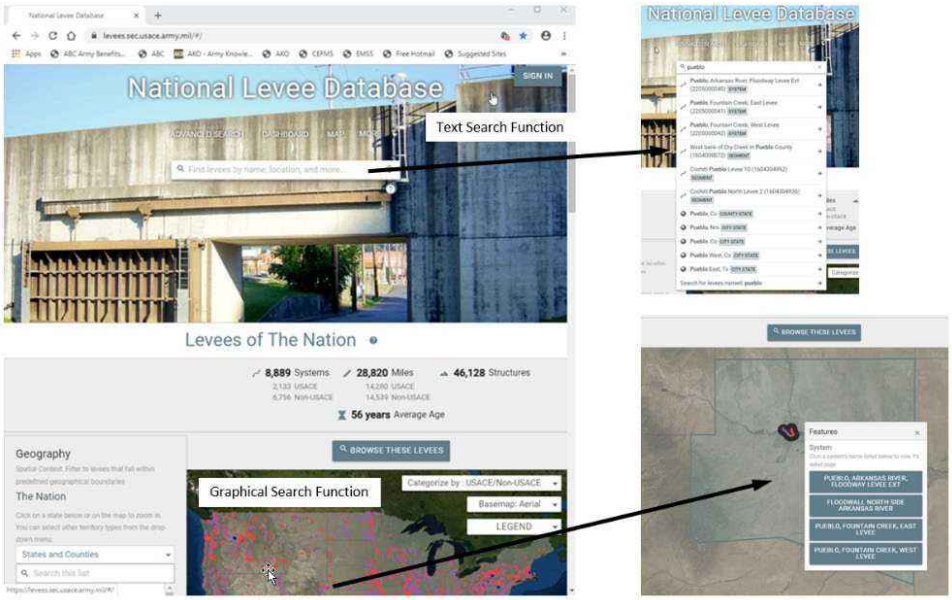

Figure 10: National Levee Database Search Functions

An additional component of FRMP is the Silver Jackets Program, which is part of the National Flood Risk Management Program. The Silver Jackets Program proposes establishing an interagency team in each state with a representative from FEMA, USACE, the State National Flood Insurance Program Coordination Office, and the State Hazard Mitigation Office as standing members and lead facilitators. The lead

FRMP Manager for the formation of the Silver Jackets Program in Colorado and the Arkansas River Basin resides in the USACE Omaha District, and the Albuquerque District performs a support role.

The Colorado Silver Jackets team was officially created in 2013. The team consists of four USACE Districts that include the Sacramento, Albuquerque, Kansas City, and Omaha Districts, with the lead Silver Jackets coordinator sitting in the Omaha District. The State of Colorado is represented by the Colorado Water Conservation Board as well as the Colorado Department of Homeland Security. FEMA Region 8 is also part of the State team. There were several FY21 projects in Colorado including the development of a follow up hydrologic analysis for the Spring Fire in the community of La Veta, Colorado, as well as near completion of an After Wildfire Interactive Training Course that will be used by communities susceptible to wildfire risk in Colorado.

6. Regulatory Program

USACE has regulatory authority under Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States. The Albuquerque District, Southern Colorado Office (SCO) reviewed a total of 94 activities in the Arkansas River Basin during Compact Year 2021, including 43 activities authorized under general (Regional or Nationwide) permits and 1 activity authorized under a Standard Individual Permit. General permits are activity-specific permits that are used to authorize projects that result in minimal adverse impacts on the aquatic environment. Standard Individual Permits are required for activities having more than minimal adverse impacts and/or for activities that do not meet the terms and conditions of a general permit.

Persons or agencies who are planning to conduct work in any waterway in the basin are advised to contact SCO at 201 W. 8th Street, Suite 350, Pueblo, Colorado 81003, email at CESPA-RD-CO@usace.army.mil, or telephone 719-744-9119. Information, including all public notices, is also available on the USACE Albuquerque District web home page at: https://www.spa.usace.army.mil/Missions/Regulatory-Program-and-Permits/.

7. Emergency Management Coordination

Public Law 84-99 provides USACE with the authority to assist state and local governments before, during, and after flood events. In the Arkansas River Basin, USACE works with the State of Colorado Division of Homeland Security and Emergency Management and the National Weather Service, in Pueblo Colorado to prepare for flood fight activities in years with significant snowpack and spring snowmelt runoff.

Assistance can be obtained by contacting the Albuquerque District, U.S. Army Corps of Engineers, Readiness and Contingency Operations Office, 4101 Jefferson Plaza NE, Albuquerque, New Mexico 87109 or telephone 505-342-3686 during our normal business hours between 7 am and 4 pm, weekdays.

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Exhibit E

Annual Meeting

December 9, 2021

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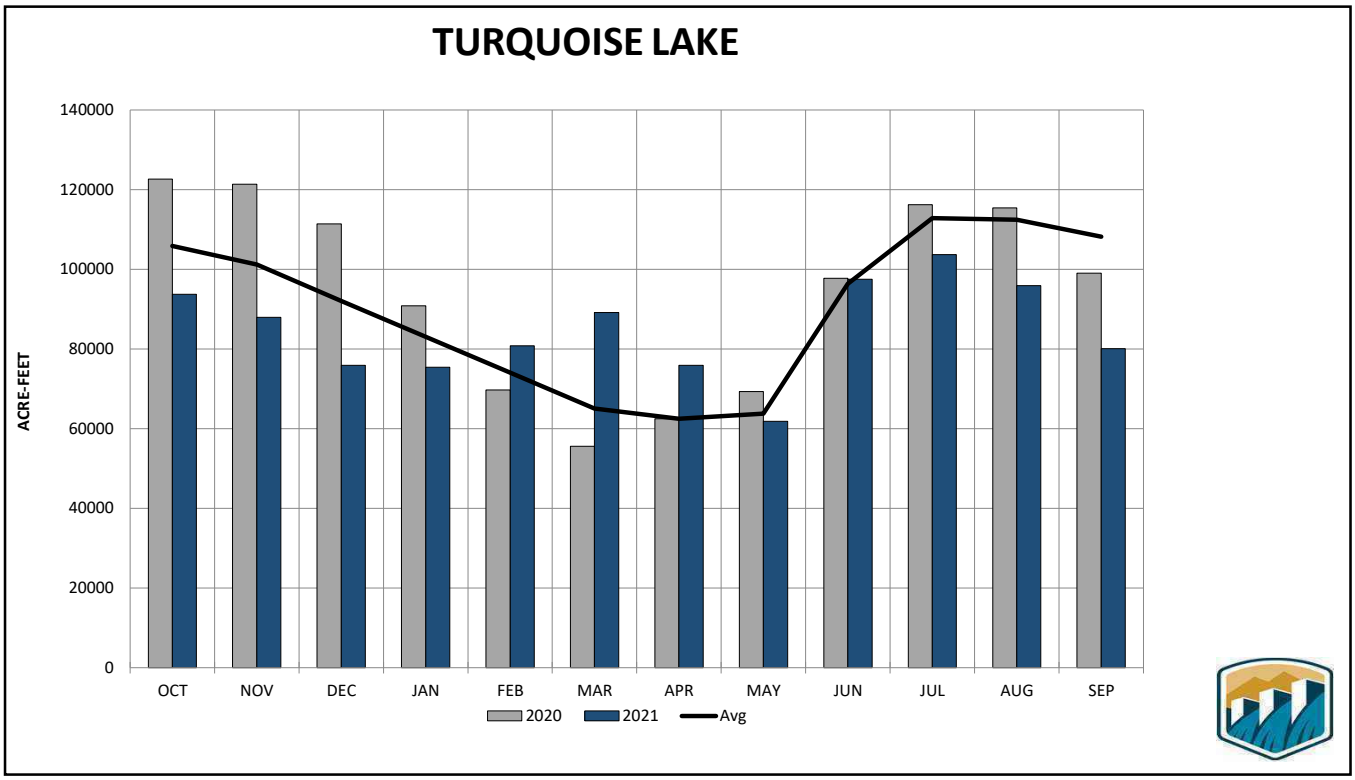
1

Fry-Ark Project 2021 Water Year

- Imports were well below average
- Snowpack in the Arkansas Basin peaked about average, but peaked weeks earlier than average
- Snowpack in the Colorado Basin started off near average, but dropped off in early December and peaked well below average
- The collection system opened April 20. Runoff peaked in June and finished by mid-July.

2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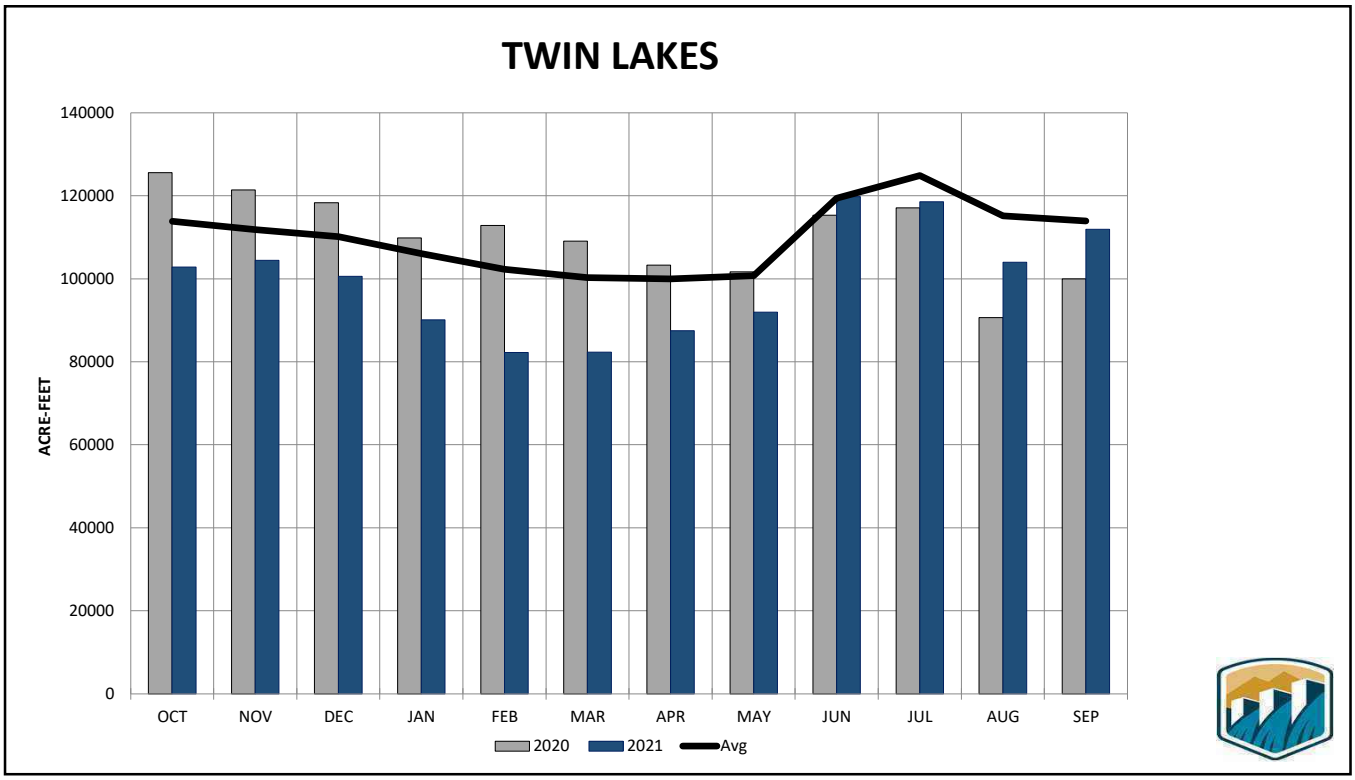
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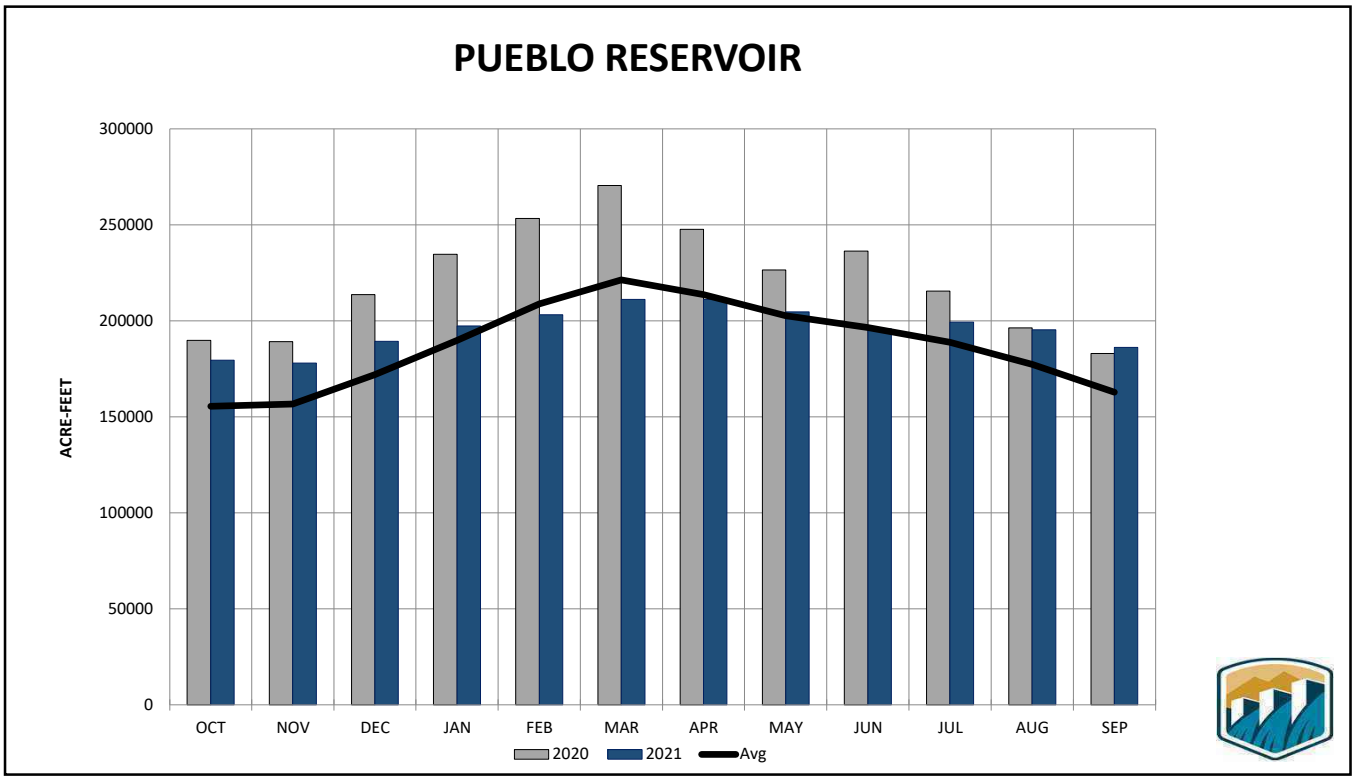
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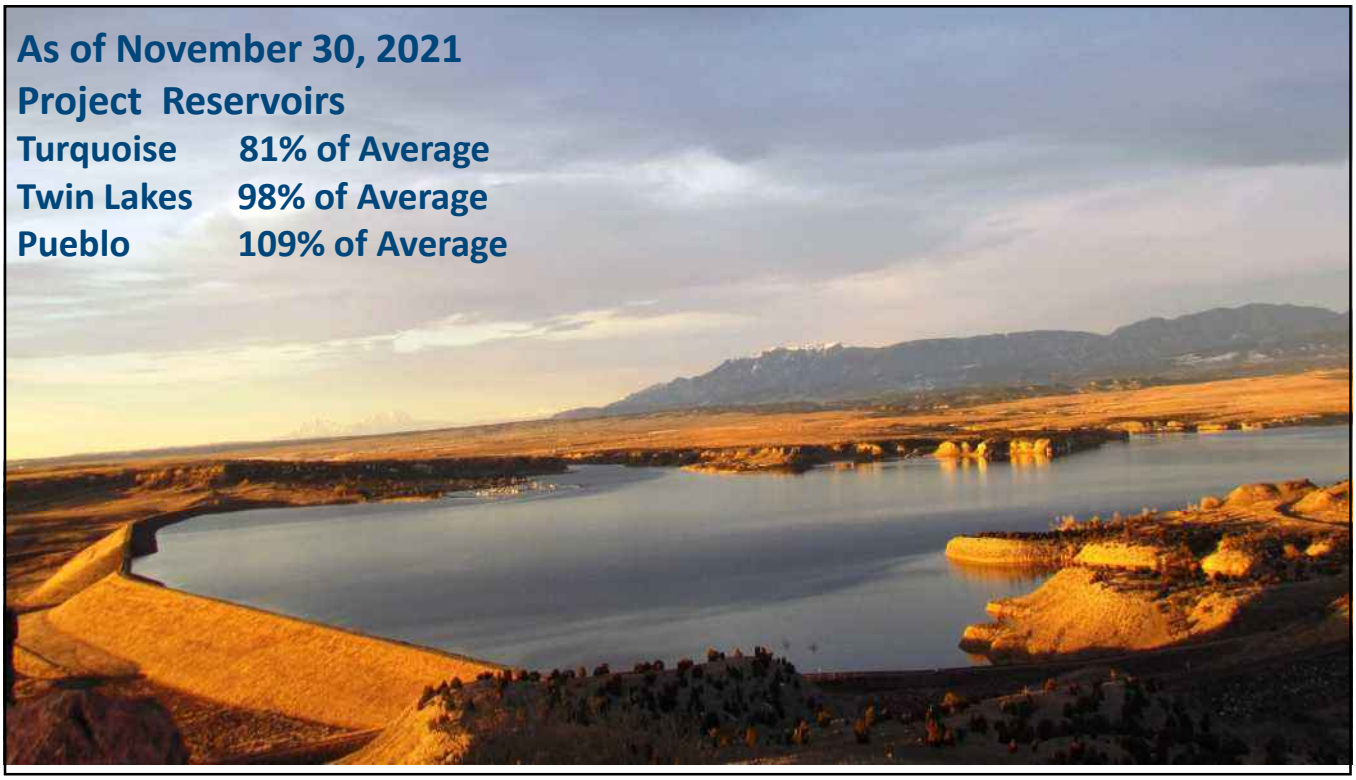
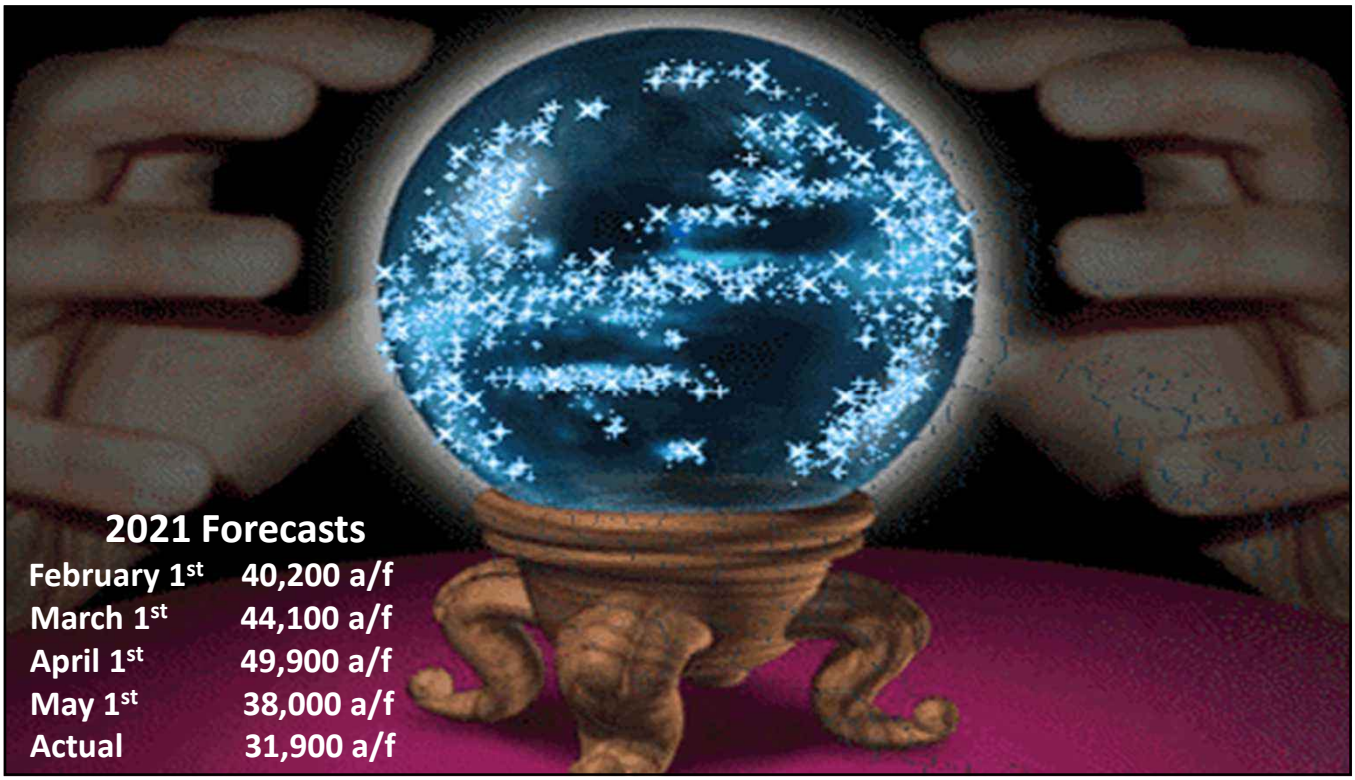
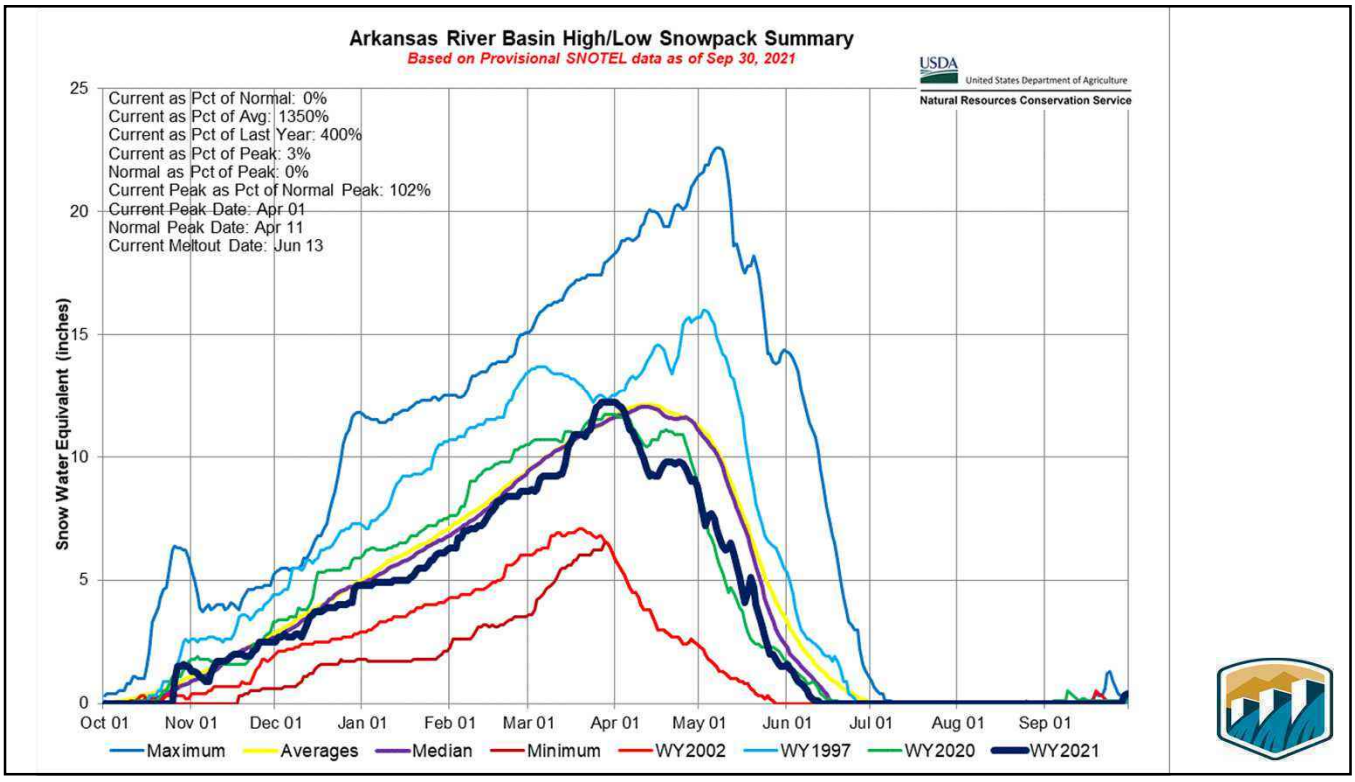

As of November 30, 2021
Project Reservoirs
Turquoise 81% of Average
Twin Lakes 98% of Average
Pueblo 109% of Average

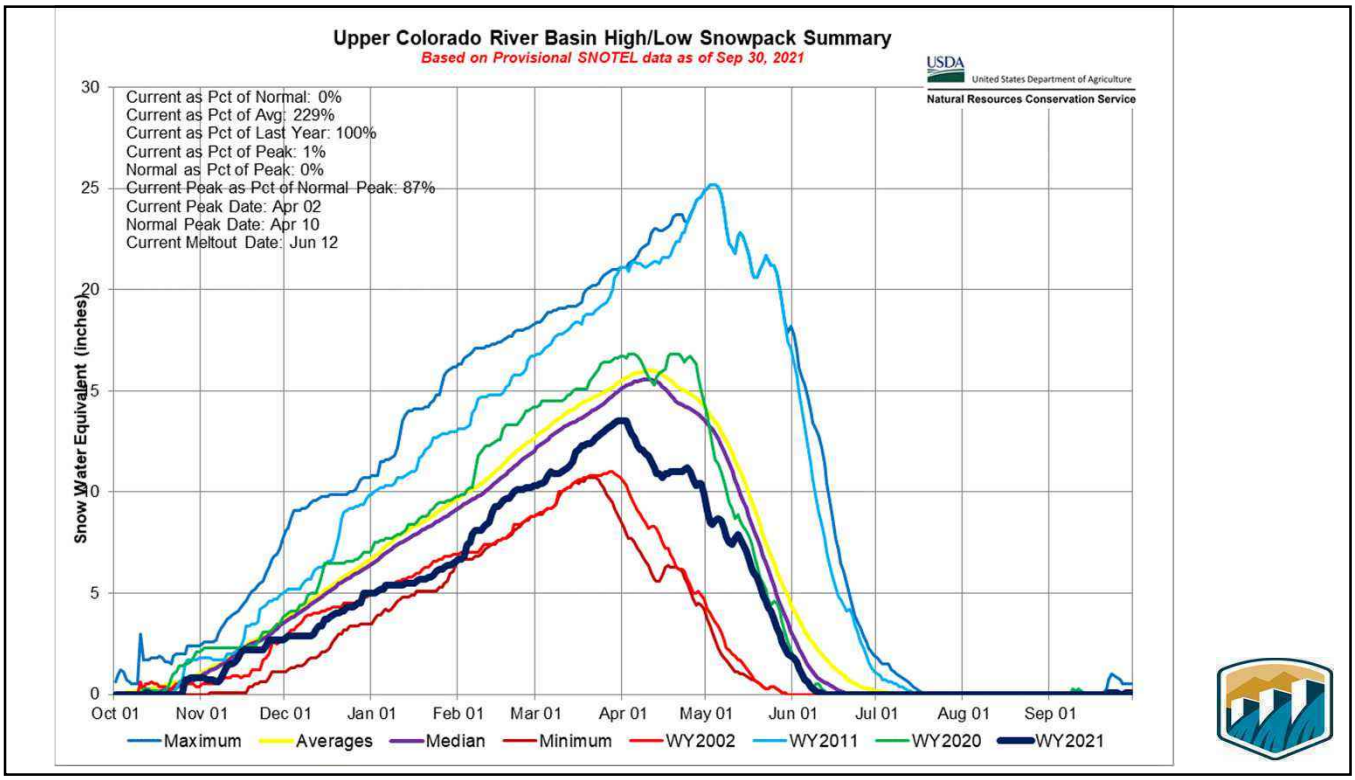
6


2021 Forecasts
February 1st 40,200 a/f
March 1st 44,100 a/f
April 1st 49,900 a/f
May 1st 38,000 a/f
Actual 31,900 a/f

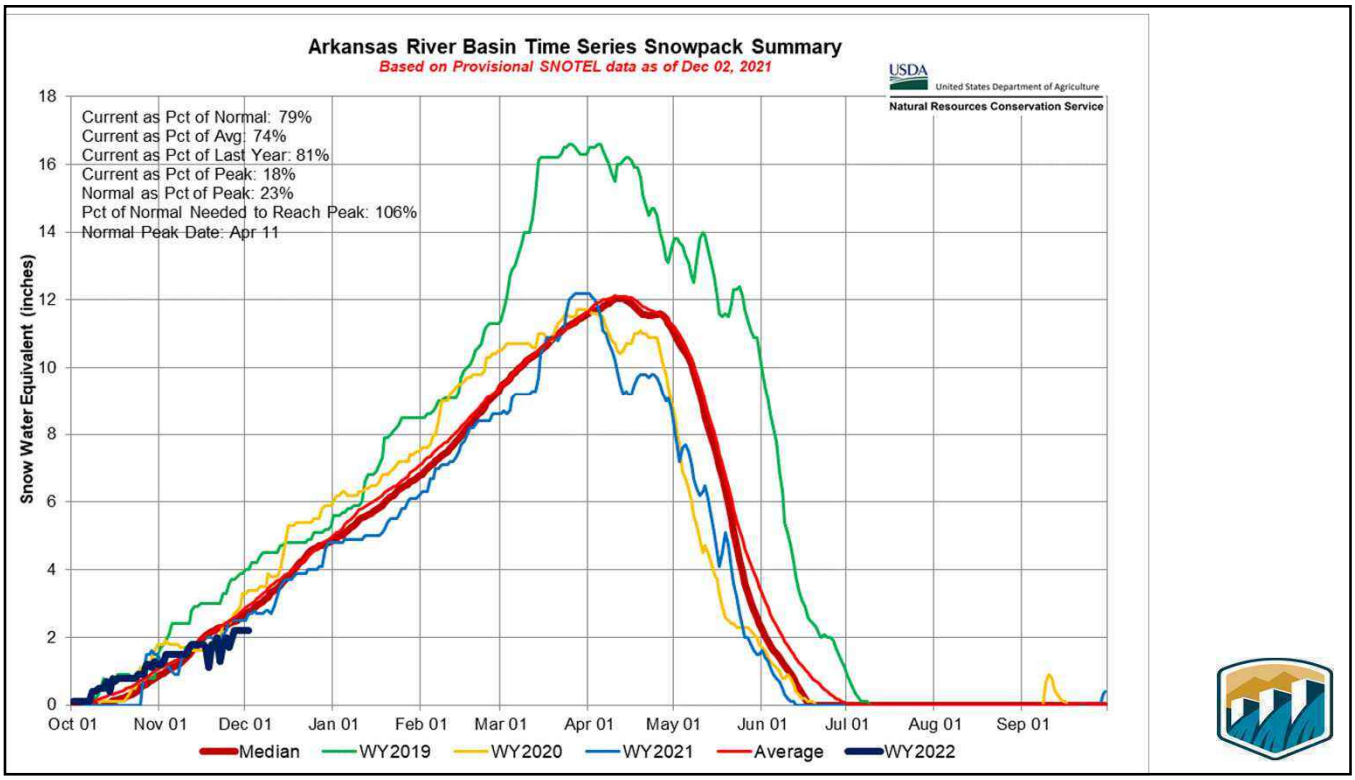
7


Arkansas River Basin High/Low Snowpack Summary
Based on Provisional SNOTEL data as of Sep 30, 2021
USDA United States Department of Agriculture
Natural Resources Conservation Service
Current as Pct of Normal: 0%
Current as Pct of Avg: 1350%
Current as Pct of Last Year: 400%
Current as Pct of Peak: 3%
Normal as Pct of Peak: 0%
Current Peak as Pct of Normal Peak: 102%
Current Peak Date: Apr 01
Normal Peak Date: Apr 11
Current Meltout Date: Jun 13
Snow Water Equivalent (inches)
0
5
10
15
20
25
Oct 01
Nov 01
Dec 01
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Jun 01
Jul 01
Aug 01
Sep 01
Maximum
Averages
Median
Minimum
WY2002
WY1997
WY2020
WY2021

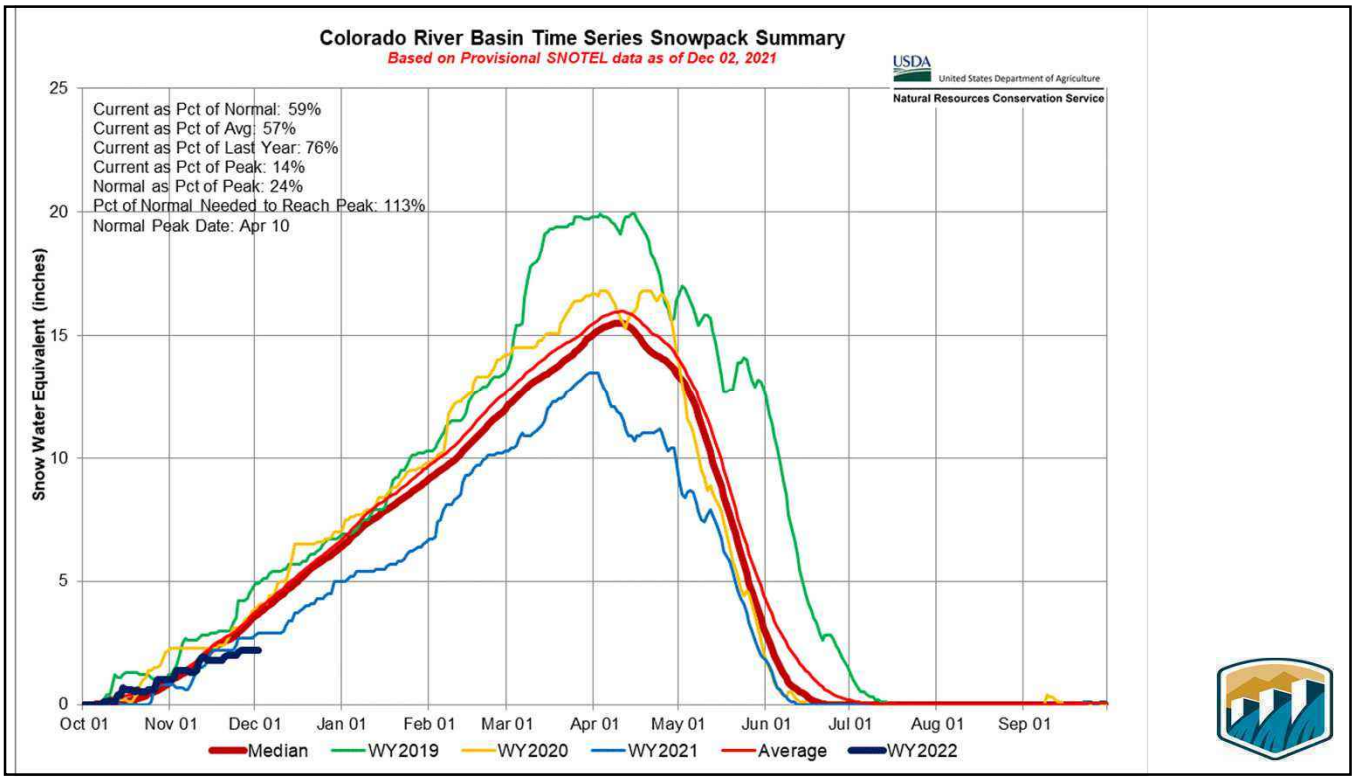
8


Upper Colorado River Basin High/Low Snowpack Summary
Based on Provisional SNOTEL data as of Sep 30, 2021
USDA United States Department of Agriculture
Natural Resources Conservation Service
Current as Pct of Normal: 0%
Current as Pct of Avg: 229%
Current as Pct of Last Year: 100%
Current as Pct of Peak: 1%
Normal as Pct of Peak: 0%
Current Peak as Pct of Normal Peak: 87%
Current Peak Date: Apr 02
Normal Peak Date: Apr 10
Current Meltout Date: Jun 12
Snow Water Equivalent (inches)
0
5
10
15
20
25
30
Oct 01
Nov 01
Dec 01
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Jun 01
Jul 01
Aug 01
Sep 01
Maximum
Averages
Median
Minimum
WY2002
WY2011
WY2020
WY2021

9


Arkansas River Basin Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Dec 02, 2021
USDA United States Department of Agriculture
Natural Resources Conservation Service
Current as Pct of Normal: 79%
Current as Pct of Avg: 74%
Current as Pct of Last Year: 81%
Current as Pct of Peak: 18%
Normal as Pct of Peak: 23%
Pct of Normal Needed to Reach Peak: 106%
Normal Peak Date: Apr 11
Snow Water Equivalent (inches)
0
2
4
6
8
10
12
14
16
18
Oct 01
Nov 01
Dec 01
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Jun 01
Jul 01
Aug 01
Sep 01
Median
WY2019
WY2020
WY2021
Average
WY2022

10



11

Winter Operations

- **Currently releasing 15 cfs from Twin and 3 cfs from Turquoise to Pueblo.**
- **We anticipate moving a total of 25,000 AF from our upper reservoirs to Pueblo.**
- **Currently about 800 AF has been moved**
- **Movement of water will be adjusted according to the forecast and customers needs.**

12

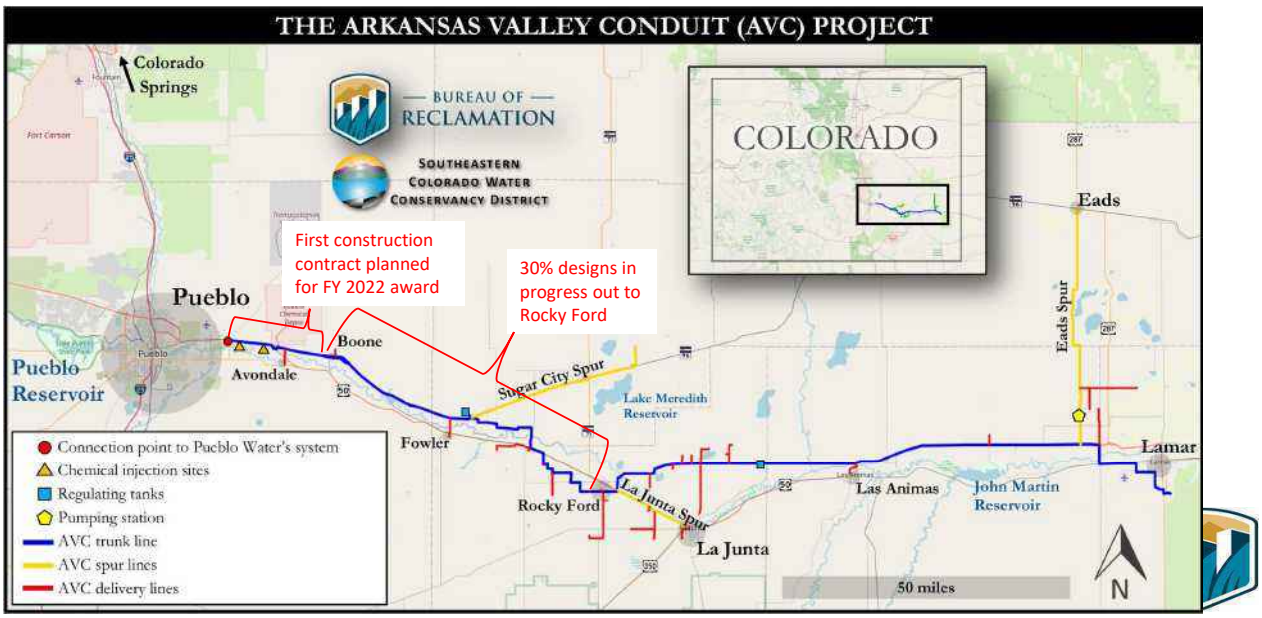
Fryingpan-Arkansas ANS Update

- Since FY2018, Reclamation has competed for additional funding connected to the DOI Invasive Species Strategic Plan and Aquatic Nuisance Species Program for the protection of water and connected infrastructure.
- Eastern Colorado Area Office (ECAO) awarded Colorado Parks and Wildlife a total of $400K to help with boat inspector labor at ECAO facilities in FY2019 and FY2021.
- Ruedi and Pueblo have received $273K for on-the-ground improvements at inspection stations since FY2018.
- For FY2022, ECAO will be awarding $150K in Inspection and Decontamination Station improvements at Twin and Turquoise. Pueblo will be receiving $200K for Inspection Station improvements. Colorado Parks and Wildlife will be receiving another $225K to help with boat inspector labor.

13

14

Arkansas Valley Conduit



15

Exhibit F

Annual Meeting

December 9, 2021

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Ten-year Accounting of Depletions and Accretions to Usable Stateline Flow
2011 - 2020

1	2	3	4	5	6	7	8	9
Year of Ten-year Cycle	Model Year	H-I Model Usable Depletion/ Accretion[1]	Offset Account Credits[2]					Remaining Usable Depletion/ Accretion[6]
			Stateline Delivery to Kansas	Evaporation Credit	Gross Credit[3]	Applied to Post-1985 Depletions[4]	Net Credit[5]	
1	2011	1,841	6,436	0	6,436	1,717	4,719	-2,878
2	2012	4,044	0	0	0	1,479	-1,479	5,523
3	2013	2,594	0	0	0	1,505	-1,505	4,099
4	2014	4,332	2,728	0	2,728	1,635	1,093	3,239
5	2015	2,779	2,695	0	2,695	2,337	358	2,421
6	2016	4,328	4,044	0	4,044	3,043	1,001	3,327
7	2017	-1,916	8,847	0	8,847	3,300	5,547	-7,463
8	2018	-9,062	4,543	0	4,543	3,346	1,197	-10,259
9	2019	11,807	8,045	0	8,045	3,756	4,289	7,518
10	2020	2,096	11,278	0	11,278	3,717	7,561	-5,465
Total		22,843	48,616	0	48,616	25,835	22,781	**62**
	Shortfall for 2021							**62**

Water Quantities are in acre-feet.

1 Positive values in Columns 3 and 9 reflect depletions; negative values, accretions. H-I Model results in Column 3 for 2020 are based on input file UPDATE20_May21.dat.

[2] Positive values in Columns 4, 5, 6, and 8 reflect credits; negative values, debits.

[3] Column 6 is the sum of Columns 4 and 5.

[4] Column 7, a positive value, is the amount of Offset Credit applied to Post-1985 depletions, determined pursuant to Appendix A.3 of the 2009 Judgment and Decree in KS v CO.

[5] Column 8 is Column 6 minus Column 7.

[6] Column 9 is Column 3 minus Column 8.

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Exhibit G

Annual Meeting

December 9, 2021

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Arkansas River Compact Administration
Operations Committee
Meeting Summary and Action Items
December 8, 2021
Clarion Inn, Garden City, KS

The committee requested staff to produce a meeting summary and a list of recommendations.

Meeting Summary

The committee received the Compact Year (CY) 2021 reports of the Operations Secretary (Bill Tyner, CDWR) and Assistant Operations Secretary (Kevin Salter, KDWR).

Rachel Zancanella, CDWR, provided an update on the 2021 Offset Account and permanent pool operations.

Rachel Duran informed the Committee that the next Joint Report of the States regarding Review of Offset Account Operations will be for the period 2017-2021, to be presented at the 2022 annual ARCA meeting.

Rachel Zancanella provided an update on the implementation of the Irrigation Improvement Rules.

Committee Recommendations to ARCA

1. Committee defers the 2021 Operations Secretary report to the Special Engineering Committee to work towards resolution of issues that are holding up unapproved OS reports.

Lane Malone, Chair

Date: 12-8-21

Troy Dumler, Member

Date: 12-8-21

Exhibit G

Arkansas River Compact Administration
Engineering Committee
Meeting Summary and Action Items
December 8, 2021
Clarion Inn, Garden City, KS

The committee requested staff to produce a meeting summary and a list of recommendations.

Meeting Summary

The Committee received an update on progress related to the Arkansas Decision Support System (ArkDSS) from CDWR staff and the Wilson Water Group. This included the elements for GIS, Administrative Tools, StateMod and StateCU Modeling that were completed under Phase I. This project is in Phase II, which includes enhancements to the Colors of Water and Forecasting Tool, additional StateMod modeling to look at unique operations like the winter water storage program, Trinidad Project operations, and John Martin Reservoir storage. Under the surface water allocation model the data processing and collection have been completed. Currently working on the historical calibration process. Future groundwater work will focus on physical parameters (gridded data, physical tests). The ET report is now available on the CDSS website for review.

Bill Tyner, CDWR, and Kevin Salter, KDWR, provided an update on the discussions related to the proposed Colorado multipurpose account in JMR. Negotiations between Kansas and Colorado are moving forward trying to resolve some outstanding issues.

Kevin Salter provided an update on efforts to replace the Frontier ditch flume.

Carlos Aragon, USACE, presented to the committee the 2021 reservoir operations for Trinidad and John Martin Reservoirs. At Trinidad, a new heavy equipment shed was constructed in the maintenance yard and contracts were awarded to replace the sump pump in the dam tower and to replace the packing glands on the two pairs of service and emergency gates. At JMR the sump pumps stopped working so were inspected and the damaged components repaired. There is a two-year program underway for flood sensor installation at JMR.

Dustin Ethredge, USGS, reported on the USGS/ARCA Cooperative Streamgage Program. USGS maintains a total of 10 streamgages along the Arkansas River. Beaver dam activity occurred at both Big Sandy Creek near Lamar and at Apishapa River near Fowler. Efforts were made to remove the beaver dams during the past year, but some dams continue to return.

Jack Goble, Lower Arkansas Water Conservancy District, provided the committee with an update on their water quality programs. The District started a project in 2016 to test the efficacy of Best Management Practices (BMPs) to improve water quality which included Canal/Ditch lining and installation of sprinklers. A project site on the Ft. Lyon was selected that would allow for baseline data to be collected prior to installation of the improvements. The project will evaluate the impact of the BMPs on water quality once enough data has been collected. Future projects include pond linings, more lateral and canal linings, rotational-fallowing projects,

riparian buffer zones, nitrogen fertilizer reduction, wetland restoration, soil heath improvement practices. Lease-Fallowing is likely to continue to increase, but lack of storage is a significant limitation. Additional storage will be required to implement these BMPs on a large scale.

Chris Woodka, Southeastern Colorado Water Conservancy District, presented on their 2021 operations and projects. Currently working on a Feature & Asset Valuation Study, Phase II, to determine the value of Fryingpan-Arkansas Project. Construction will begin in October-November 2022 on the Arkansas Valley Conduit. Boone and Avondale reach complete by 2024. The entire line is estimated to be complete by 2035.

Earl Lewis, Chair

Date: 12/9/2021

Scott Brazil, Member

Date: 12-9-2021

Arkansas River Compact Administration
Administrative & Legal Committee
Meeting Summary and Action Items
December 8, 2021
Clarion Inn, Garden City, KS

The committee requested staff to produce a meeting summary and a list of recommendations.

Meeting Summary

The committee reviewed the Committee agenda adding agenda item *5.D. 75th Anniversary of Compact and JMR.*

The committee reviewed the Annual meeting agenda, adding agenda items *11.A John Van Oort Letter* and *11.B Roy Vaughn Recognition.*

Rachel Duran noted that the 2020 Annual meeting transcript had been provided by the court reporter and was in the process of being reviewed by staff. Suggested edits will be sent back to the court reporter and it is the goal that this transcript would be ready for approval at ARCA's next meeting, be that a special or annual meeting.

Andrew Rickert provided an update on the work done during the past Compact Year on the ARCA Annual reports. Drafts of the 1994, 1995, 1996, and 1998 annual reports have been put together and passed on to the Operations and Assistant Operation's Secretaries for their final review. The drafts will then be provided to the Admin & Legal Committee for their review and approval.

Stephanie Gonzales, ARCA Recording Secretary and Treasurer provided her report and presented the Auditor's report.

The Cooperative agreements with USGS, Colorado SMS contract, and budget for FY21-22 were discussed. There was no modifications needed for the FY21-22 budget.

The proposed FY22-23 ARCA budget was reviewed.

One proposed resolution was put before the committee, entitled *Regarding the Special Engineering Committee for 2022 and 2023.*

Nominations of ARCA officers and committee chair appointments were done within this committee.

There was discussion of how to celebrate the 75th ARCA anniversary.

There was discussion on possible dates and locations for the 2022 ARCA Annual meeting.

Committee Recommendations to ARCA

1. The committee reviewed the Annual meeting agenda, adding agenda items *11.A John Van Oort Letter* and *11.B Roy Vaughn Recognition.*

2. Recommend ARCA approve the Fiscal Year (FY) 2020-21 Auditor's Report and authorize Stephanie Gonzales to sign the engagement letter for the auditor's services.

3. Recommend ARCA authorize Stephanie Gonzales to sign the Colorado and Kansas USGS Joint Funding Agreements (JFA), the Colorado SMS contract for Fiscal Year (FY) 2022-2023.

4. Recommend ARCA approve the Fiscal Year (FY) 2022-2023 Budget and Assessment.

5. Recommend ARCA approve the resolution titled *Regarding the Special Engineering Committee for 2022 and 2023.*

6. Recommend ARCA approve the following slate of officers for CY 2022:

   a. Vice-chairman.....Randy Hayzlett
   b. Recording/Secretary- Treasurer.....Stephanie Gonzales
   c. Operations Secretary.....Bill Tyner
   d. Assistant Operations Secretary.....Kevin Salter

7. Recommends the following committee chairs for CY 2022 (does not need an ARCA vote to adopt):

   a. Engineering..... Scott Brazil as Chair (Earl Lewis as member)
   b. Operations..... Troy Dumler as Chair (Lane Malone as member)
   c. Admin & Legal..... Randy Hayzlett as Chair (Rebecca Mitchell as member)

8. Recommend a committee be appointed to plan the celebration for the 75th anniversary of the Compact and that the committee would work with the federal agencies as well as propose the budget for the celebration.

9. Recommend ARCA approve the dates of December 7, 2022 for the committee meetings and December 8, 2022 for the annual meeting. Both meetings to be held in Lamar, Colorado.

Rebecca Mitchell

Rebecca Mitchell, Chair

Date: 12-9-2021

Randy Hayzlett

Randy Hayzlett, Member

Date: 12/9/2021

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Exhibit H

Annual Meeting

December 9, 2021

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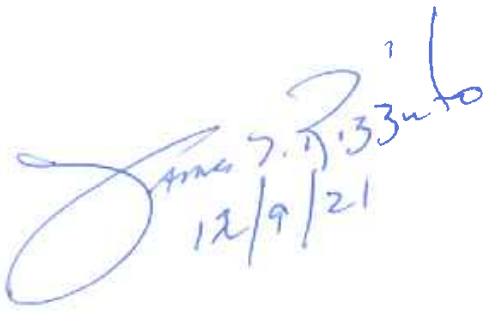
Arkansas River Compact Administration

Financial Statements

June 30, 2021



2 of 4 originals

Exhibit H

Arkansas River Compact Administration
Annual Financial Report
For the Year Ended June 30, 2021

Table of Contents

Independent Auditor's Report

The Governing Body
Arkansas River Compact Administration

Opinions

We have audited the financial statements of the governmental activities and each major fund Arkansas River Compact Administration (the "Compact"), as of and for the year ended June 30, 2021, and the related notes to the financial statements, which collectively comprise the Compact's basic financial statements as listed in the table of contents.

In our opinion, based on our audit, the accompanying financial statements present fairly, in all material respects, the respective financial position of the governmental activities and each major fund of the Compact, as of June 30, 2021, and the respective changes in financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Compact, and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Compact's ability to continue as a going concern for one year after the date that the financial statements are issued.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material

p o box 1173 203 east oak st. lamar, colorado 81052 (719) 336-7428 (719) 336-2982

if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Compact's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Compact's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control–related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the budgetary information be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Management has omitted the Management's Discussion and Analysis that accounting principles generally accepted in the United States of America require to be present to supplement the basic financial statements. Such missing information, although not a required part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of the financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. Our opinion is not affected by this missing information.

rfarmer, llc

November 17, 2021

Arkansas River Compact Administration
Statement of Net Position
June 30, 2021

	Governmental Activities
ASSETS	
Cash and Equivalents	$ 214,432
Total Assets	214,432
LIABILITIES	
Total liabilities	-
NET POSITION	
Unrestricted	214,432
Total net position	$ 214,432

The accompanying notes to financial statements
are an integral part of these statements.

Arkansas River Compact Administration
Statement of Activities
For the Year Ended June 30, 2021

Functions/Programs	Expenses	Program Revenue Charges for Services	Net (Expense) Revenue and Changes in Net Position Primary Government Governmental Activities
Primary government			
Governmental Activities			
General Government	$ 75,328	$ 90,000	$ 14,672
Total governmental activities	75,328	90,000	14,672
Total primary government	75,328	90,000	14,672
General revenues:			
Unrestricted interest income			400
Total general revenues, special items, and transfers			400
Change in net assets			15,072
Net position - beginning			199,360
Net position - ending			$ 214,432

The accompanying notes to the financial statements
are an integral part of these statements.

Arkansas River Compact Administration
Balance Sheet
Governmental Fund
June 30, 2021

	General
ASSETS	
Cash and cash equivalents	$ 214,432
Other receivables	-
Total assets	214,432
LIABILITIES AND FUND BALANCES	
Liabilities:	
Total liabilities	-
Fund balances:	
Unassigned	214,432
Total fund balances	214,432
Total liabilities and fund balances	$ 214,432

The accompanying notes to financial statements
are an integral part of these statements.

Arkansas River Compact Administration
Reconciliation of the Governmental Fund Balance Sheet to the Statement of Net Position
June 30, 2021

Total Fund Balance, Governmental Funds	$	214,432
Net Position of Governmental Activities in the Statement of Net Position	$	214,432

The accompanying notes to financial statements
are an integral part of these statements.

Arkansas River Compact Administration
Statement of Revenues, Expenditures and Changes in Fund Balances
Governmental Fund
For the Year Ended June 30, 2021

	General
REVENUES	
State Assessments	$ 90,000
Interest Income	400
Total revenues	90,400
EXPENDITURES	
Gauging Stations and Studies	60,163
Professional Services	13,989
Operating Expenses	1,176
Total Expenditures	75,328
Excess (deficiency) of revenues over expenditures	15,072
Net change in fund balances	15,072
Fund balances - beginning	199,360
Fund balances - ending	$ 214,432

The accompanying notes to financial statements
are an integral part of these statements.

Arkansas River Compact Administration
Reconciliation of the Statement of Revenues, Expenditures, and Changes in Fund Balance of Governmental Funds to the Statement of Activities
For the Year Ended June 30, 2021

Net change in fund balances - total governmental funds:	$	15,072
Change in net position of governmental activities	$	15,072

The accompanying notes to financial statements
are an integral part of these statements.

Arkansas River Compact Administration
Notes to Financial Statements
June 30, 2021

Note 1 Reporting Entity

Arkansas River Compact Administration (the Compact), a quasi-governmental entity, was created in 1948 and approved by Congress 63 Stat.145 (1949).

The major purposes of the Compact are to:

A. Settle existing disputes and remove causes of future controversy between the States of Colorado and Kansas, and between citizens of one and citizens of the other State, concerning the water of the Arkansas River and their control, conservation and utilization for irrigation and other beneficial purposes.

B. Equitably divide and apportion between the States of Colorado and Kansas the waters of the Arkansas River and their utilization as well as the benefits arising from the construction, operation, and maintenance by the United States of John Martin Reservoir Project for water conservation purposes.

All financial transactions of the Compact are included in the General Fund of the basic financial statements. The Board of the Compact is accountable for all fiscal matters.

The financial statements present the financial position of Compact in accordance with Governmental Accounting Standards.

The Compact has no component units.

Note 2 Summary of Significant Accounting Policies

The accounting and reporting policies of the Compact conform to accounting principles generally accepted in the United States of America (USGAAP) as applicable to government units. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. The following summary of significant accounting policies is presented to assist the reader in evaluating the County's financial statements.

Measurement Focus, Basis of Accounting and Financial Statement Presentation

Government-Wide and Fund Financial Statements

The Compact government-wide financial statements include a Statement of Net Position and a Statement of Activities. These statements present summaries of Governmental Type Activities for the Compact accompanied by a total column.

The Statement of Activities demonstrates the degree to which the direct expenses of a given function or segment are offset by program revenues. *Direct expenses* are those that are clearly identifiable with a specific function or segment. *Program revenues* include (1) charges to customers or applicants who purchase, use or directly benefit from goods, services or privileges provided by a given function or segment and (2) grants and contributions that are restricted to meeting the operational or capital requirements of a particular function or segment.

Separate financial statements are provided for the governmental fund.

The government-wide financial statements are presented on an *economic resource's measurement focus* and the *accrual basis of accounting*. Accordingly, all the Compact's assets and liabilities, including capital assets, as well as infrastructure assets, and long-term liabilities, are included in the accompanying Statement of Net position. The Statement of Activities presents changes in net position. Under the accrual basis of accounting, revenues are recognized in the period in which they are earned while expenses are recognized in the period in which the liability in incurred.

Governmental fund financial statements are reported using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the Compact considers revenues to be available if they are collected within a reasonable period of time after the end of the current fiscal period. Expenditures generally are recorded when a liability is incurred, as under accrual accounting.

The primary revenue sources, which have been treated as susceptible to accrual by the Compact, are the state assessments.

The Compact reports the following major governmental funds:

General Fund

This is the Compact's primary operating fund. It accounts for all activities of the Compact.

Reconciliation of the Fund financial statements to the Government-Wide financial statements is provided in the financial statements to explain the differences created by the integrated approach of GASB Statement No. 34.

The Compact does not have any general fixed assets or infrastructure.

Fund Equity

In the fund financial statements, governmental funds report reservations of fund balance for amounts that are not available for appropriation or are legally restricted by outside parties for use for a specific purpose. Designations of fund balance represent tentative management plans that are subject to change.

Net Position

Net position represents the difference between assets and liabilities. Net investment in capital assets consists of capital assets, net of accumulated depreciation, reduced by the outstanding balances of any borrowing used for the acquisition or construction of improvements of those assets.

Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results may differ from those estimates.

Budgets and Budgetary Accounting

Annual budgets are adopted as required by the Compact and by-laws, as amended.

Budgets are adopted on a basis consistent with generally accepted accounting principles (GAAP). Budgetary comparisons in this report are presented on the GAAP basis of accounting.

Note 3 Deposits and Investments

Deposits

Colorado State Statutes, specifically the Public Depository Protection Act (PDPA) of 1989, require all public monies to be deposited in financial institutions that have been designated as eligible public depositories. Eligible public depositories must pledge eligible collateral, as promulgated by the State banking board, having a market value in excess of 102% of the aggregate uninsured public deposits. Eligible collateral must be held in the custody of any federal reserve bank or any branch thereof or of any depository trust company which is a member of the Federal Reserve System, and which is supervised by the State banking board. The Statutes further restrict such deposits to eligible public depositories having their principal offices within the State of Colorado.

Custodial Credit Risk

Deposits are exposed to custodial credit risk if they are not covered by depository insurance or PDPA and the deposits are:

a. Uncollateralized,
b. Collateralized with securities held by the pledging financial institution, or
c. Collateralized with securities held by the pledging financial institution's trust department or agent but not in the depositor-government's name.

The Compact was not exposed to custodial credit risk in that all cash is deposited in one local financial institution that is covered by FDIC insurance and the Public Depository Protection Act (PDPA).

The Compact is not exposed to any other investment risks as defined in GASB 40.

Note 4 **Fund Balances**

The Compact has implemented GASB Statement No. 54, "Fund Balance Reporting and Governmental Fund Type Definitions." In the fund financial statements, the following classifications describe the relative strength of spending constraints.

Non-Spendable Fund Balance

This is the portion of fund balance that cannot be spent because it is either not in spendable form (such as inventory and prepaid amounts) or is legally or contractually required to be maintained intact.

Restricted Fund Balance

This is the portion of fund balance constrained to being used for a specific purpose by external parties (such as grantors or bondholders), constitutional provisions, or enabling legislation.

Committed Fund Balance

This is the portion of fund balance constrained for specific purposes according to the limitations imposed by the Compact's highest level of decision-making authority, which is the Board.

Assigned Fund Balance

This is the portion of fund balance set aside for planned or intended purposes but is neither restricted nor committed. The intended use may be expressed by the Compact or their designee authorized to assign funds to be used for a specific purpose. Assigned fund balances in special revenue funds will also include any remaining fund balance that is not restricted or committed. This classification is necessary to indicate that those funds are, at a minimum, intended to be used for the purpose of that particular fund.

Unassigned Fund Balance

This is the residual portion of fund balance that does not meet any of the above criteria. The Compact will only report a positive unassigned fund balance in the General Fund.

When both restricted and unrestricted fund balance are available for use, it is the Compact's policy to use restricted amounts first. Unrestricted fund balance will be used in the following order: committed, assigned and unassigned.

Arkansas River Compact Administration
Budget and Actual
General
For the year ended June 30, 2021

	Budgeted Amounts Original and Final	Actual Amounts, Budgetary Basis
REVENUES		
State Assessments	$ 90,000	$ 90,000
Interest Income	200	400
Total revenues	90,200	90,400
EXPENDITURES		
Current:		
Gauging Stations and Studies	78,019	60,163
Professional Services	16,225	13,989
Operating Expenses	1,500	1,176
Contingency	2,000	-
Total Expenditures	97,744	75,328
Excess (deficiency) of revenues over expenditures	(7,544)	15,072
Net change in fund balances	(7,544)	15,072
Fund balances - beginning	199,076	199,360
Fund balances - ending	$ 191,532	$ 214,432

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Exhibit I

Annual Meeting

December 9, 2021

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ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado 81052

For Colorado	Chair and Federal Representative	For Kansas
Rebecca Mitchell, Denver	James T. Rizzuto, Swink	Earl Lewis, Manhattan
Lane Malone, Holly		Randy Hayzlett, Lakin
Scott Brazil, Vineland		Troy Dumler, Garden City

FY 2022 - 2023 BUDGET

(July 1, 2022 - June 30, 2023)

I. EXPENDITURES		
A. PROFESSIONAL SERVICE CONTRACTS		
1. Treasurer		$2,250
2. Recording Secretary		$2,250
3. Operations Secretary		$6,100
4. Auditor Fee		$3,100
5. Court Reporter Fee		$2,250
6. Treasurer Bond		$100
	subtotal services	**$16,050**
B. GAGING STATIONS, STUDIES, & DATA COLLECTION		
1. U.S.G.S. Colorado District Joint Funding [calendar year 2022]		$50,577
2. U.S.G.S. Kansas District Joint Funding [calendar year 2022]		$13,000
3. State of Colorado Satellite System [7/1/21 - 6/30/22]		$12,400
4. CoAgMet Weather Station O&M Cost-share [7/1/21 - 6/30/22]		$5,000
	subtotal gaging	**$80,977**
C. OPERATING EXPENSES		
1. Website Hosting		$500
2. Telephone		$100
3. Miscellaneous Office Expense		$100
4. Postage/Copying/Supplies		$150
5. Meetings		$1,000
6. Travel		$250
7. Rent		$600
	subtotal operating	**$2,700**
D. OTHER		
1. Equipment		$0
2. Contingency		$2,000
3. Litigation		$0
4. Special Projects and Studies		$0
	subtotal other	**$2,000**
	TOTAL ALL EXPENDITURES	**$101,727**
II. INCOME		
A. ASSESSMENTS		
1. Colorado (60%)		$54,000
2. Kansas (40%)		$36,000
	subtotal assessments	**$90,000**
B. OTHER		
1. Interest Earnings		$400
2. Miscellaneous		$0
	subtotal other	**$400**
	TOTAL ALL INCOME	**$90,400**
III. CASH RESERVE BALANCE		
A. ESTIMATED CASH BALANCE JULY 1, 2022 [from FY21-22 Annual Budget]		**$206,433**
B. DECREASE FROM RESERVE		**$11,327**
C. ADDITION TO BALANCE		0
D. PROJECTED BALANCE JUNE 30, 2023		**$195,106**

Adopted by the Arkansas River Compact Administration at its Dec. 9, 2021 Annual Meeting.

Stephanie Gonzales, Recording Secretary and Treasurer — Date

Stephanie Gonzales — 12/9/2021

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Exhibit I

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Exhibit J

Annual Meeting

December 9, 2021

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ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado 81052

For Colorado	Chair and Federal Representative	For Kansas
Rebecca Mitchell, Denver	James T. Rizzuto, Swink	Earl Lewis, Manhattan
Lane Malone, Holly		Randy Hayzlett, Lakin
Scott Brazil, Vineland		Troy Dumler, Garden City

December 9, 2021
Van Oort Family
P.O. Box 148
Rye, Colorado

Subject: Recognition of Service for John Van Oort, Colorado Division of Water Resources

To Tammy Van Oort and the Van Oort Family:

The Arkansas River Compact Administration (ARCA) would like to formally recognize the dedication and the beneficial impact to the business of ARCA and water users in Colorado and Kansas exhibited by John Van Oort.

John was an incredible individual whose daily work was impactful to numerous citizens of southeastern Colorado and southwestern Kansas through his efforts to ensure that operation of the Colorado-Kansas Compact Reservoir (John Martin Reservoir) was done properly and that water rights in Colorado were properly administered.

His work life touched the lives of dozens of individuals from Colorado Division of Water Resources and Kansas Division of Water Resources as well as the various Compact representatives, State Engineers from Colorado and Chief Engineers from Kansas who interacted with him during his seventeen-year career with Colorado DWR during Compact meetings and through more frequent meetings throughout the years.

It is with deep sorrow that we mourn the recent passing of John, but with great honor that we memorialize his accomplishments and express our thanks for the relationships he built over the years.

Sincerely,

James T. Rizzuto
Chairman
Arkansas River Compact Administration

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Exhibit K

Annual Meeting

December 9, 2021

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ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado 81052

For Colorado	Chair and Federal Representative	For Kansas
Rebecca Mitchell, Denver	James T. Rizzuto, Swink	Earl Lewis, Manhattan
Lane Malone, Holly		Randy Hayzlett, Lakin
Scott Brazil, Vineland		Troy Dumler, Garden City

December 9, 2021

Roy Vaughan
1091 S May Valley Dr
Pueblo West, CO 81007

RE: Recognition of Service for Roy Vaughan, United States Bureau of Reclamation

Roy,

The Arkansas River Compact Administration wish to recognize Roy Vaughan who is retiring from the Bureau of Reclamation at the end of this year. Roy has provided updates on Bureau activities, especially related to Pueblo Reservoir for many years. Roy is friendly, knowledgeable, and always available to answer questions.

Roy's career includes 30 years of service to the water users in the Arkansas Basin. Roy has been the Facility Manager at Pueblo Reservoir after working his way up through the ranks. Roy's role has not been limited to activities at Pueblo Reservoir. He has actively participated in numerous meetings on behalf of the Bureau including Southeastern Colorado Water Conservancy District meetings, and Winter Water Program meetings.

The Colorado Representatives would also note that Roy has been heavily involved in many diverse water user efforts and has worked tirelessly to protect not only the Bureau's interests but also agricultural, recreational and municipal water user interests that involve the various aspects of the Fryingpan Arkansas Project. The USBR's cooperative effort associated with the Voluntary Flow Management Program, under the direction of Roy, times the movement of transmountain Project water deliveries down to Pueblo Reservoir to enhance both the recreational interests of the rafting industry and the development of the longest river segment of gold medal fishery in Colorado.

The members of the Arkansas River Compact Administration express their gratitude to Roy Vaughan for his service and wish him the very best in retirement.

Sincerely,

James T. Rizzuto
Chairman
Arkansas River Compact Administration

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ARCA 2021 ANNUAL MEETING
RESOLUTIONS

NUMBER	Description
2021-01	Regarding the Special Engineering Committee for 2022 and 2023

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ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado 81052

For Colorado	Chair and Federal Representative	For Kansas
Rebecca Mitchell, Denver	James T. Rizzuto, Swink	Earl Lewis, Manhattan
Lane Malone, Holly		Randy Hayzlett, Lakin
Scott Brazil, Vineland		Troy Dumler, Garden City

RESOLUTION 2021 - 01

Regarding the
Special Engineering Committee for 2022 and 2023

WHEREAS, pursuant to Bylaw Article V.5., the Arkansas River Compact Administration ("ARCA") by Resolution No. 2005-01 created the "Special Engineering Committee" ("Committee" or "SEC") at its December 2005 Annual Meeting to resolve four categories of "assigned tasks," including certain accounting and interpretation issues arising from the Resolution Concerning an Operating Plan for John Martin Reservoir ("1980 Operating Plan"); and

WHEREAS, the Special Provisions of the 2005 Resolution creating the Committee specify that: "Term: The Special Engineering Committee shall be authorized for a period expiring on Dec. 31, 2006. ARCA may extend this period by Resolution adopted at any regular or special ARCA meeting prior to such date"; and

WHEREAS, ARCA has extended the existence of the SEC each subsequent year, most recently in 2019 for a term expiring Dec. 31, 2021; and

WHEREAS, the Committee has resolved disputed issues placed before it during its term, and assigned tasks still remain before it with the potential for further agreement;

NOW THEREFORE, BE IT RESOLVED that ARCA does hereby extend the term of the Committee for two full years to expire on December 31, 2023; and

BE IT FURTHER RESOLVED that the SEC will consider the following prioritized subjects at meetings authorized by this resolution:

1. A pilot project to evaluate the effects of a Colorado multipurpose account.
2. Identification and resolution of flood and spill issues related to the federal reservoirs in the basin.
3. Identification and resolution of issues related to the split of winter inflows to John Martin Reservoir.
4. Identification and resolution of issues preventing approval of past Operations Secretary Reports.

ADOPTED by the Arkansas River Compact Administration at its 2021 Annual Meeting on December 09, 2021, in Garden City, Kansas.

James T. Rizzuto, Chair
Arkansas River Compact Administration

Stephanie Gonzales, Recording Secretary
Arkansas River Compact Administration

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