

ARKANSAS RIVER COMPACT ADMINISTRATION

Lamar, Colorado 81052

For Colorado

Chairman and Federal Representative

For Kansas

Jennifer Gimbel, Denver

Vacant

David Barfield, Topeka

Colin Thompson, Holly

Randy Hayzlett, Lakin

Matt Heimerich, Olney Springs

David A. Brenn, Garden City

December 1, 2011

Mr. Colin Thompson, Chairman
Mr. David Brenn, Member
Operations Committee
Arkansas River Compact Administration

Re: Compact Year 2011 Summary
Assistant Operations Secretary Report

Gentlemen,

In this letter report, I provide my perspective as Assistant Operations Secretary on operations that have occurred over the past Compact Year (CY) 2011, including communications, the Pueblo Winter Water Storage Program, deliveries to Kansas, deliveries to the John Martin Reservoir Permanent Pool, pass-thru & status accounting, the Water Issues Matrix, and other issues which were worked on.

Communications

The Operations Secretary, Assistant Operations Secretary, and their respective staff have set a goal of open and frequent communications regarding Arkansas River operational issues to foster a positive, collaborative, and productive working relationship. Staff changes in both offices presented communication challenges in CY 2011. With the staffing issues being addressed, we should be able to regain effective communication in CY 2012 between the offices.

Meetings: The Operations and Assistant Operations Secretaries met in Lamar, Colorado, on two separate occasions: May 10th and November 21st. These meetings were attended by staff from each State. Summaries of these meetings were not generated. Among the issues discussed at these meetings were: reservoir and river operations, augmentation plans, Colorado Irrigation Improvement Rules, Water Issues Matrix, reservoir-to-reservoir deliveries, the Livingston transit loss studies, the Pueblo Winter Water Storage Program (PWWSP), Pueblo Reservoir deviation, and other issues.

Regular Communications: The States communicated throughout the year on a variety of topics including John Martin Accounting System (JMAS) data updates,

stockwater releases from Trinidad Reservoir, PWWSP operational issues, JMR Permanent Pool deliveries, and Offset Account operations. Emails represented the primary means of communication.

Pueblo Winter Water Storage Program

Kansas has long been concerned about how the split between the Compact conservation storage and PWWSP water passing thru the Arkansas River at Las Animas USGS gage is determined. While both States have spent considerable time evaluating this issue, it has not been resolved. Kansas’s key concern is whether or not water being stored under PWWSP includes water that would have otherwise been stored in Compact conservation storage.

Figure 1 shows graphically the river flows and the Compact ratio from November 1, 2010 thru March 31, 2011. The PWWSP period is from November 15th through March 14th.

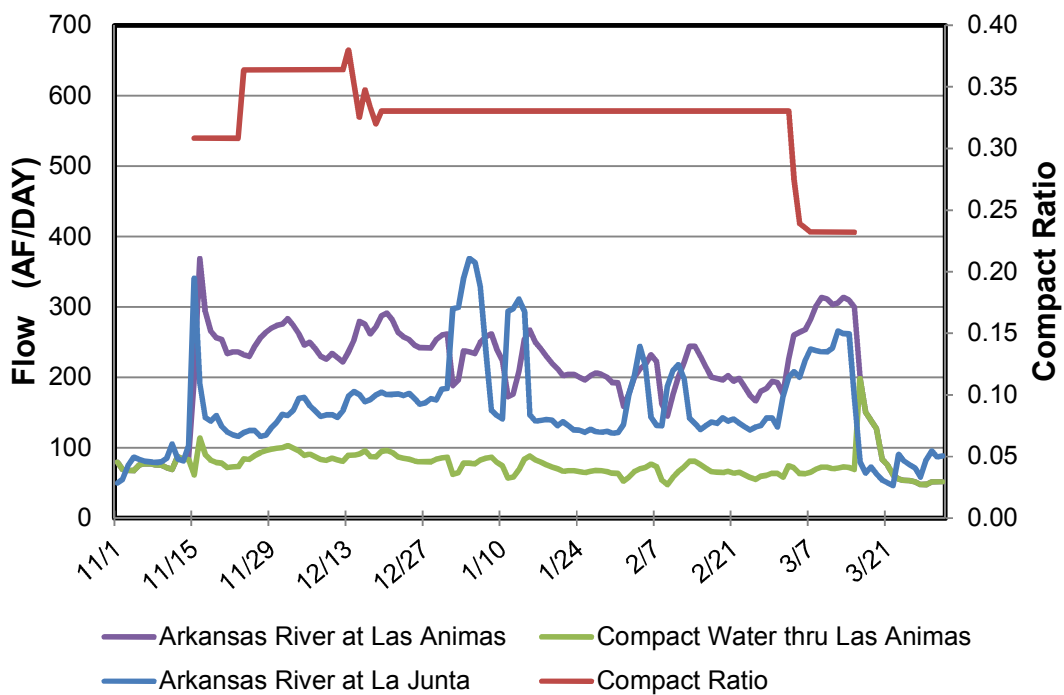


Figure 1 Flows attributed to the Compact passing thru Arkansas River at Las Animas between November 1, 2010 and March 31, 2011. The PWWSP stored water in John Martin Reservoir between November 15, 2010 and March 15, 2011.

In CY 2011, I participated in an operational tour of the Las Animas Consolidated ditch with Steve Witte and Lonnie Spady on November 8, 2010. They provided an overview of the operations of the Las Animas Consolidated with stops at various locations in the ditch service area. Of specific interest were locations where water was

returned to either the Arkansas River or Purgatoire River. The water we found returning to the Arkansas River below the Arkansas River at Las Animas gage was either associated with irrigation operations or returning through the end of the ditch.

During our field review, we found other locations where water could be returned to the Purgatoire River: two wasteways on the west bank and an irrigation return on the east bank. These were located immediately above the Purgatoire near Las Animas gage. On November 8th, only the irrigation return had any water running in it.

For CY 2012, Rachel Duran and I met with Steve Witte, Phil Reynolds, Jeanette Myers, and Lonnie Spady to review operations of the Las Animas Consolidated ditch on 14 November. We reviewed the operations of this ditch focusing on the places where it can return water to the Purgatoire River or Arkansas River below the Las Animas USGS gage. We found only small amounts being returned to the Arkansas River at the lower end of the ditch. The two locations with the most water were the tail end of the ditch and a drainage ditch.

Deliveries to Kansas

On June 30, 2011, a 400 cfs release from the Kansas Section II Account was started at John Martin Reservoir for delivery to the Colorado-Kansas state line (Stateline). The antecedent Stateline flow was less than 150 cfs for the prior ten days; therefore, a concurrent Transit Loss Account release was coordinated between Colorado Division 2 staff (Bill Tyner) and Garden City Field Office staff (Brandy Cole & I). We discussed the river conditions as related to potential transit loss on the Kansas Section II delivery. Bill Tyner suggested an 80 cfs concurrent release from the Transit Loss Account based on his experiences with releases to the Buffalo Canal this summer. We accepted Bill's recommendation, with agreement to monitor the release and make additional adjustments as needed. See email dated June 30, 2011 (Attachment 1). There was additional discussion on making further adjustments, but no further adjustments were made. The transit loss release and that concurrent release continued until the Transit Loss Account was exhausted on July 11th. A total of 1,741 AF was released from the Transit Loss Account.

Upon exhaustion of the Kansas Section II Account on July 13th, Kansas called for an Offset Account release. Given the Stateline flows, the Offset Account release continued at 400 cfs, the same as the Kansas Section II release rate. This release rate was maintained until July 24th when the Offset Account was effectively exhausted. A total of 8,741 AF was released from the Offset Account. A graph of the Stateline delivery accounting is shown in Figure 2.

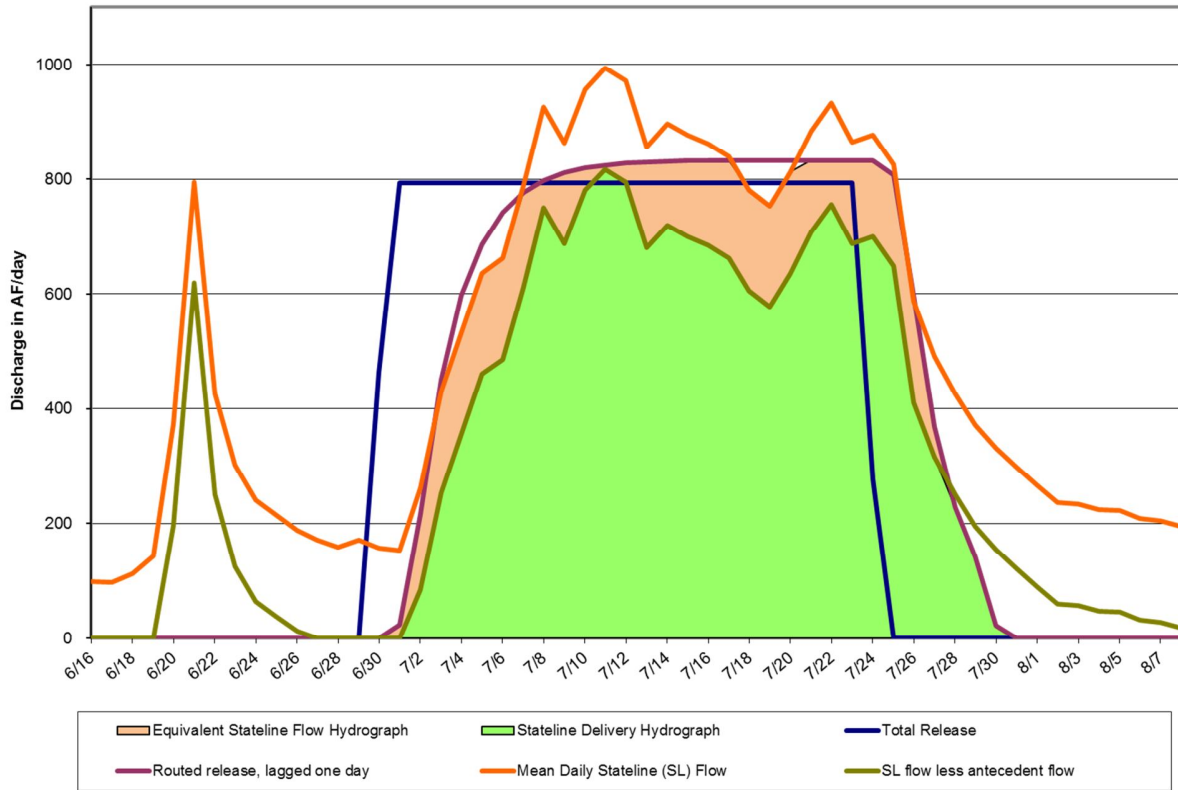


Figure 2 Hydrograph of Kansas Section II and Offset Account releases, June 30 to July 14, 2011 (from spreadsheet "KSReleaseJun30-July14_USGS_Updates.xls")

Both States have reviewed the accounting of Section II and Offset Account deliveries to Kansas. Based on that review, we are in agreement on final Stateline deliveries of both the Kansas Section II Account and Offset Account releases (Table 1). See Attachment 2.

Table 1. Summary of Kansas Section II and Offset Account releases during June 30 and July 14, 2011 (see email dated October 12, 2011 / Attachment 2)

Offset Delivery Efficiency =	84.20%
Offset Net Delivery =	7,360 AF
Offset Consumable Delivery =	6,436 AF
ESF Delivery Efficiency =	100%
Section II Delivery =	10,247 AF
Section II Delivery Transit Loss =	0 AF
Evaporation Delivery Credit =	0 AF
Total Offset =	8,741 AF
Transit Loss on Consumable =	1,208 AF
Granada Transit Loss Credit Percentage =	47.2%
Transit Loss Model Input JMR to Lamar =	53 AF
Transit Loss Model Input Lamar to Granada =	208 AF
Transit Loss Model Input Granada to Stateline =	351 AF
Total Transit Loss Model Input =	613 AF

Reservoir-to-Reservoir Deliveries

Deliveries of water stored in upstream reservoirs were made to both the Offset and Permanent Pool Accounts in JMR in this Compact Year. Previously, I had expressed concerns related to the how these deliveries were accounted for in JMR (Water Issues Matrix-Issue #33). My specific concern was related to the recapture of transit loss associated with the calculated bank storage. Reservoir deliveries to these accounts did not include any transit loss recapture.

For the deliveries made this year, the transit loss was calculated using the 1978 Livingston method developed for the Pueblo Reservoir to John Martin Reservoir reach of the Arkansas River. This calculation includes as inputs the antecedent flow conditions, release rate and duration. The release was delivered to John Martin over approximately the same number of days as it was released. It is my understanding that this method will be used for reservoir-to-reservoir deliveries, and bank storage will not be recaptured going forward. Steve Witte and I have started discussions on how we can document the resolution of Water Issue Matrix-Issue #33.

Pass-thru and Status Accounting

JMR daily inflow, storage, and outflow were tracked by the Garden City Field Office staff for CY2011. The final spreadsheet was provided to the Operations Secretary on November 8th for inclusion in his report.

As way of explanation, this spreadsheet tracks the amount of river inflow, the account inflow & release, evaporation, storage, and reservoir release. The spreadsheet calculates unengaged inflow, pass-thru, and the “status” of the reservoir. This spreadsheet

was regularly updated and reviewed by the Garden City Field Office staff. The spreadsheet was reviewed during the November 21st OS-AOS meeting.

Water Issues Matrix

This is a joint work product of the States which is designed to track the various disputed issues. The latest is attached to this report (Attachment 3). A summary table showing the status of the 35 issues (10 pending, 7 removed-suspended and 18 resolved) is attached (Attachment 4).

Other Issues

In addition to the items above, considerable time was spent by the States on the following issues since the last Compact meeting:

- *Agreement on H-I Model Changes to Address Increases in Irrigation Efficiency for Pumped Groundwater (2011 Agreement)*
- Development of an outline for an Offset Account review joint report

The States will continue to be engaged in various Compact compliance issues as they implement the Judgment and Decree in *Kansas v Colorado*. The Decree calls out specific accountings and reviews that will be conducted into the future.

Summary

The communication between the offices was impacted by staff changes in both offices, but should improve over the next Compact Year. The States continue to work on issues related to the Pueblo Winter Storage Program, especially as it impacts storage in John Martin Reservoir. The Kansas Stateline delivery accounting for Kansas Section II and Offset accounts has reduced disputes and has allowed the States to come to an agreement on the quantity of water delivered. The accounting of reservoir-to-reservoir deliveries to John Martin Reservoir did not include transit loss recapture and we should be able to list Issue #33 as resolved by the next annual meeting. I look forward to working with the Operations Secretary and his next staff.

Sincerely,



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

Attachments

Attachment 1

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Salter, Kevin

From: Tyner, Bill <Bill.Tyner@state.co.us>
Sent: Thursday, June 30, 2011 9:23 AM
To: Cole, Brandy; Salter, Kevin
Cc: Witte, Steve; Spady, Lonnie A.; Meyer, Mike
Subject: RE: Kansas Release

Brandy,

Thanks and I will get the release scheduled with the Corps.

Bill W. Tyner, P.E.

Assistant Division Engineer

Division of Water Resources

310 E. Abriendo Ave, Suite B

Pueblo, CO 81004

719-542-3368 x2110

From: Cole, Brandy [<mailto:Brandy.Cole@KDA.KS.GOV>]
Sent: Thursday, June 30, 2011 8:15 AM
To: Tyner, Bill; Salter, Kevin
Cc: Witte, Steve; Spady, Lonnie A.; Meyer, Mike
Subject: RE: Kansas Release

Bill:

This email will document discussions related to Kansas calling for water out of their Section II Account. The release was discussed between Bill Tyner of Colorado Division 2 and Kevin Salter and myself for Kansas Division of Water Resources.

With Stateline 10-day antecedent flow being less than 150 cfs, Bill Tyner calculated the transit loss and recommend release rate of 80 cfs given the drought conditions (reference email below). We are in agreement with the transit loss of 80 cfs on the Section II release of 400 cfs at this time and will monitor the flows and adjust as needed.

Brandy Cole, Environmental Scientist

Dept. of Agriculture/Div. of Water Resources

Garden City Field Office

620-276-2901

Brandy.Cole@kda.ks.gov

www.ksda.gov/dwr

From: Tyner, Bill [<mailto:Bill.Tyner@state.co.us>]
Sent: Wednesday, June 29, 2011 4:57 PM
To: Salter, Kevin; Cole, Brandy
Cc: Witte, Steve; Spady, Lonnie A.; Ark River Ops
Subject: Kansas Release

Kevin & Brandy,

I initiated the crediting spreadsheet and it indicates a Livingston computed transit loss of 9.4%. From experience this year we have been charging much higher transit losses on reservoir releases to Buffalo Canal so I would recommend releasing at least an 80 cfs Transit Loss Account component to get the initial push to the stateline. Let me know what you think and we can confirm the release amount in the morning.

Thanks,

Bill W. Tyner, P.E.

Assistant Division Engineer

Division of Water Resources

310 E. Abriendo Ave, Suite B

Pueblo, CO 81004

719-542-3368 x2110

<< File: KSReleaseJun30-July25.xls >>

Attachment 2

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Salter, Kevin

From: Tyner, Bill <Bill.Tyner@state.co.us>
Sent: Wednesday, October 12, 2011 2:44 PM
To: Salter, Kevin
Cc: Witte, Steve; Beightel, Chris; Meyer, Mike; Cole, Brandy
Subject: RE: Kansas Delivery Spreadsheet

Thanks Kevin

From: Salter, Kevin [<mailto:Kevin.Salter@KDA.KS.GOV>]
Sent: Wednesday, October 12, 2011 1:43 PM
To: Tyner, Bill
Cc: Witte, Steve; Beightel, Chris; Meyer, Mike; Cole, Brandy
Subject: RE: Kansas Delivery Spreadsheet

Bill,

I agree with the numbers for the Kansas delivery in the spreadsheet you provided this morning.

Kevin Salter
Division of Water Resources
Kansas Department of Agriculture
Garden City, KS

kevin.salter@kda.ks.gov
(620) 276 - 2901

From: Tyner, Bill [<mailto:Bill.Tyner@state.co.us>]
Sent: Wednesday, October 12, 2011 9:46 AM
To: Salter, Kevin
Subject: RE: Kansas Delivery Spreadsheet

Kevin,

I updated the delivery spreadsheet per the USGS numbers in the attached version.

Thanks,
Bill W. Tyner, P.E.
Assistant Division Engineer
Division of Water Resources
310 E. Abriendo Ave, Suite B
Pueblo, CO 81004
719-542-3368 x2110

From: Salter, Kevin [<mailto:Kevin.Salter@KDA.KS.GOV>]

Sent: Wednesday, October 12, 2011 8:14 AM

To: Tyner, Bill

Subject: RE: Kansas Delivery Spreadsheet

Good morning. I'm going through my emails and ran across this and the email you sent on 2 August with the updated spreadsheet. Did you further update the spreadsheet after the 2 August version? ...
Kevin

From: Tyner, Bill [<mailto:Bill.Tyner@state.co.us>]

Sent: Friday, August 12, 2011 9:46 AM

To: William F Payne

Cc: Cole, Brandy; Craig A Dare; Van Oort, John; Zeisler, Justin; Salter, Kevin

Subject: RE: Kansas Delivery Spreadsheet

Thanks Bill

From: William F Payne [<mailto:wfpayne@usgs.gov>]

Sent: Friday, August 12, 2011 8:44 AM

To: Tyner, Bill

Cc: bcole@kda.state.ks.us; Craig A Dare; Van Oort, John; Zeisler, Justin; Salter, Kevin

Subject: Re: Kansas Delivery Spreadsheet

Bill,

There are data for all the days listed for John Martin and Granada.

Bill

USGS Colorado Water Science Center

201 E. 9th Street

Pueblo, CO 81003

(719) 544-7155 x122

(719) 544-2463

wfpayne@usgs.gov

From: "Tyner, Bill" <Bill.Tyner@state.co.us>

To: "Salter, Kevin" <Kevin.Salter@KDA.KS.GOV>

Cc: <bcole@kda.state.ks.us>, "Craig A Dare" <cdare@usgs.gov>, "William F Payne" <wfpayne@usgs.gov>, "Van Oort, John" <John.VanOort@state.co.us>, "Zeisler, Justin" <Justin.Zeisler@state.co.us>

Date: 08/01/2011 04:52 PM

Subject: Kansas Delivery Spreadsheet

Kevin,

Attached is the delivery spreadsheet for the 2011 Kansas delivery. It looks like we just had a few days where we had missing provisional data. I show those dates as:

ARKANSAS R NR COOLIDGE, KS

7/10/11

7/23/11

7/24/11

FRONTIER DITCH NR COOLIDGE, KS

6/20/11

7/10/11

7/23/11

7/24/11

ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, CO

6/28/11

7/9/11

ARKANSAS RIVER NEAR GRANADA, CO

7/12/11

Perhaps Craig and Bill could let us know the provisional daily flow rate for these dates for these gages and we can get this wrapped up.

Thanks,

Bill W. Tyner, P.E.

Assistant Division Engineer

Division of Water Resources

310 E. Abriendo Ave, Suite B

Pueblo, CO 81004

719-542-3368 x2110

<<KSReleaseJun30-July24.xls>> [attachment "KSReleaseJun30-July24.xls" deleted by William F Payne/WRD/USGS/DOI]

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Attachment 3

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Water Issues Matrix

Pending JMR Accounting Issues	2
10 – Resolved.....	2
11 – Removed	2
12 – Consideration of new sources for permanent pool water – no specific source has been identified for consideration.....	2
13 – Removed	2
20 – Resolved.....	2
21 – Resolved.....	2
22 – Criteria for determining Section III storage under the Pueblo Winter Water Storage Program (PWWSP).....	3
23 – Resolved.....	3
24 – Utilization of “Summer storage season” as defined by the 1980 Operating Plan ..	4
25 – Criteria for Summer storage event trigger – Section II. B 1.....	4
26 – Section II limitations on use made of account water to irrigation only.....	5
27 – First reference to Section II in Section III (A).....	5
30 – Resolved.....	5
31 – Resolved.....	5
32 – Resolved.....	5
33 – Transit loss on reservoir-to-reservoir deliveries	6
40 – Resolved.....	7
41 – Resolved.....	7
42 – Resolved.....	7
43 – Resolved.....	7
44 – City of Lamar regulating account	7
50 – Commencement of a spill event.....	8
51 – Resolved.....	8
52 – Upstream storage during JMR spill events	8
53 – Adjusted JMR inflows during times of spill.....	9
54 – Resolved.....	9
60 – Section II(C)(2) compliance (Agreement B)	9
61 – Resolved.....	10
62 – Resolved.....	10
63 – Removed	10
64 – Resolved.....	10
65 – Removed	10
66 – Resolved.....	10
67 – Resolved.....	10
70 – Trinidad Reservoir: Passing of inflows exceeding 1,000 cfs.....	10
Notes on Water Issues Matrix.....	11
Resolutions.....	11
Water Issues Matrix Versions.....	12

Pending JMR Accounting Issues

10 – Resolved -- Permanent Pool evaporation charges calculated by pro rata volume vs. incremental area
11 – Removed -- Transfer of Account water to Permanent Pool during flood control operations in JMR

12 – Consideration of new sources for permanent pool water – no specific source has been identified for consideration	
<i>ARCA Committee</i>	Engineering
<i>Issue Category & Priority¹</i>	B – 8
<i>Legal² – Policy³ – Technical⁴</i>	Policy
<i>Kansas Staff Position</i>	<i>Colorado Staff Position</i>
<i>Kansas Staff Comments</i>	<i>Colorado Staff Comments</i>
<i>ARCA Committee or other general comment(s)</i>	
<ul style="list-style-type: none"> • LAWMA made a conceptual proposal at the December 2005 ARCA Annual Meeting • LAWMA provided additional detail for this proposal in February 2007 • Informal discussion between Kansas, LAWMA and Colorado • A timeline for discussion between Kansas & LAWMA was established at 2007 ARCA Annual meeting. • David Barfield letter (26 December 2007) • Matt Heimerich letter (January 7, 2008) • David Barfield provided a list of discussion items (email Jan 18, 2008) • Discussion between Barfield & Heimerich on proposal (call Feb 5, 2008) • Email from Matt (Feb 5, 2008) to Colorado team / Barfield agreed to provide a list of LAWMA Colorado Water Rights for use as a source for the permanent pool • LAWMA withdraws its request by letter dated (letter July 1, 2008) • LAWMA has an obligation to provide a source of water for the JMR Permanent Pool, so this issue remains active • David Barfield provides to Matt Heimerich principles that would guide Kansas evaluation (letter dated Nov 25, 2008) 	

13 – Removed -- 1980 Operating Plan's Restriction on use of Section III related to Perm Pool
20 – Resolved -- Winter Water Account of convenience
21 – Resolved -- Timely distribution of Section III storage charge during Pueblo Winter Water Storage Program (PWWSP)

¹ Categories: **A** – capable of resolution; **B** – may need to be addressed by an ARCA Committee other than Operations; and **C** – staffs have taken this issue as far as they can. The priority based on two groupings “A” issues and “B & C” issues. From memos dated 5 Feb 2004 and 19 August 2004 (Witte & Rude)

² **Legal** is defined as an issue that is not resolvable at this time or within ARCA

³ **Policy** is defined as an issue that needs to have input or guidance from either Operations Committee or ARCA

⁴ **Technical** is defined as an issue that can be resolved by the respective State staffs

22 – Criteria for determining Section III storage under the Pueblo Winter Water Storage Program (PWWSP)	
<i>ARCA Committee</i>	Operations
<i>Issue Category & Priority</i>	A – 4
<i>Legal – Policy – Technical</i>	Legal 1 st / Technical 2 nd
<i>Kansas Staff Position</i>	<i>Colorado Staff Position</i>
The criterion used by Colorado fails to adhere to what was established under the 1980 Operating Plan, specifically: “The Amity may store such water as it could otherwise divert from the Arkansas River for storage in the Great Plains Reservoir system ...” (Section III.A.) and for the Fort Lyon and Las Animas Consolidated they may deliver water under the PWWSP but “the delivery cannot include water that otherwise would have accumulated in conservation storage” (Sections III.B. and C.).	The criteria used to divide inflow to JMR into conservation storage/Section III is not provided in the 1980 Operating Plan, but has been continuously used. Since KS did not prove PWWSP caused injury, CO is reluctant to change.
<i>Kansas Staff Comments</i>	<i>Colorado Staff Comments</i>
ARCA should establish criteria for determining the water available for Section III storage in JMR to protect inflows to conservation storage. Water delivered to JMR under the PWWSP should meet those criteria. <u>In 2007, a snowpack covered SE Colorado that would have prevented direct irrigation. This snowpack may have impacted off-channel storage as well.</u> <u>There appears to be a fairly consistent drop in flow on the Purgatoire River near Las Animas that appears to be related to the Las Animas Consolidated diversions. Visited the Las Animas Consolidated in Nov 2010 and didn't observe any significant returns to the Purgatoire above the USGS gage. Additional follow-up is needed.</u> <u>In November 2010 & 2011, visited the Las Animas Consolidated ditch service area with Colorado Div 2 staff. We found returns below the Ark @ Las Animas gage consistent with irrigation operations.</u> <u>In November 2011, Salter developed a spreadsheet to gage impacts of changes to the Ark @ Las Animas split between the Compact and PWWSP.</u>	Colorado consideration of changes may occur.
<i>ARCA Committee or other general comment(s)</i>	
The Operation Secretary and the Assistant Operation Secretary should continue to work on this issue (10 May 2002).	

23 – Resolved --Reporting of Winter Water vs. Winter Compact storage split calculation

24 – Utilization of “Summer storage season” as defined by the 1980 Operating Plan	
ARCA Committee	Operations
Issue Category & Priority	
Legal – Policy – Technical	
Kansas Staff Position	Colorado Staff Position
The 1980 Operating Plan defines the "Summer storage season shall be the period of time commencing at the first exhaustion of conservation storage and continuing to and including the next succeeding October 31."	
Kansas Staff Comments	Colorado Staff Comments
The 1998 Operations Secretary’s Annual Report notes that the Operations Secretary deviate from ...	This is an aspect of Kansas’ complaint regarding Agreement B (Issue # 60), not a separate issue and therefore should be removed.
ARCA Committee or other general comment(s)	

25 – Criteria for Summer storage event trigger – Section II. B 1	
ARCA Committee	Operations Committee
Issue Category & Priority	na
Legal – Policy – Technical	technical
Kansas Staff Position	Colorado Staff Position
ARCA needs to address Section II. B (1) with respect to determination of “existing irrigation requirements” for ditches that no longer engage in irrigation. Also the criteria related to how the 1,000 AF over then existing irrigation requirements is applied.	Colorado law defines the extent of a water right based on historical use. Water rights submitted for adjudication of changed uses must meet standard of non-injury to other water users. This issue may be resolved by striking the word “irrigation” from the phrase quoted at left. The 1980 Operating Resolution should also be amended to add the words “per day” to follow “1000 AF”, to resolve the second concern
Kansas Staff Comments	Colorado Staff Comments
In general, this appears to be primarily a technical issue and we need to discuss the mechanics of how to quantify the “then existing irrigation requirements.” This issue does have some relationship with Issue 26	
ARCA Committee or other general comment(s)	

26 – Section II limitations on use made of account water to irrigation only	
<i>ARCA Committee</i>	Operations Committee
<i>Issue Category & Priority</i>	na
<i>Legal – Policy – Technical</i>	policy &/or legal
<i>Kansas Staff Position</i>	<i>Colorado Staff Position</i>
Use of Section 2 account water for uses other than irrigation is not allowed unless approved by ARCA. Such approval should be conditioned such that the historic flow regime of the river under irrigation is maintained and would be done on a case-by-case basis.	Colorado is not aware of any restrictions on the use of water stored in the respective Section II accounts of Kansas or the Colorado Water District 67 ditches. Water stored in the Section II accounts has been used to replace depletions from well pumping for many years without objection by Kansas.
<i>Kansas Staff Comments</i>	<i>Colorado Staff Comments</i>
Both the Compact and the 1980 Operating Plan are predicated on irrigation use. Any changes need to maintain the flow regime of the river as if irrigation was the only use of the water. ARCA has governance over operations of John Martin Reservoir, including storage accounts created under the 1980 Operating Plan. Any deviations from irrigation operations need to have those operations approved by ARCA so that the flow regime of the river can be maintained. This issue does have some relationship with Issue 25.	
<i>ARCA Committee or other general comment(s)</i>	
xx	

27 – First reference to Section II in Section III (A)	
<i>ARCA Committee</i>	Operations Committee
<i>Issue Category & Priority</i>	na
<i>Legal – Policy – Technical</i>	Policy
<i>Kansas Staff Position</i>	<i>Colorado Staff Position</i>
The language in Section III.A is not consistent with other provisions of the 1980 Operating Plan. For example, Section II.G where water stored in Section III.A is called to spill specifically before the Section II account water.	The reference granting Amity permission to “store such water as it could otherwise divert for storage in the Great Plains Reservoir system in its account granted in Section II ” (emphasis added) appears to be inappropriate and is contrary to longstanding practice.
<i>Kansas Staff Comments</i>	<i>Colorado Staff Comments</i>
<i>ARCA Committee or other general comment(s)</i>	
■ Added to matrix at direction of Operations Committee in Dec 2009	

30 – Resolved -- Determination of transit loss under Section II(E)(4)
31 – Resolved -- Sections II (E)(4) and III (D) are unclear as to where transfers to make up deficits should be made
32 – Resolved -- How should transit loss account be used?

33 – Transit loss on reservoir-to-reservoir deliveries	
ARCA Committee	Operations Committee
Issue Category & Priority	na
Legal – Policy – Technical	Technical
<i>Kansas Staff Position</i>	<i>Colorado Staff Position</i>
Given Livingston’s assumptions regarding the nature of the transit loss and other river operations that could consume “unconsumed” transit loss, the credited delivery for unconsumed transit loss to John Martin is too large. If there is an unconsumed transit loss portion that can be recovered, then the accounting for that portion should correspond with actual timing of when it is delivered to the JMR.	The 1978 Livingston Report provides a sound and reasonable basis for determining transit losses and should be relied upon until improved by a subsequent study.
<i>Kansas Staff Comments</i>	<i>Colorado Staff Comments</i>
<p>Kansas’ basis described in 12/1/07 AOS Report to ARCA Operations Committee, pg 6-10. From that report:</p> <p>“The Livingston 1978 Report notes that the transit loss model simulates response during steady-state conditions and that during un-steady state condition the transit losses are approximations. Tributary inflows, canal diversions, or water table conditions are listed as factors that would affect transit losses (page 21 of Livingston 1978 Report). The report also notes that conditions that are significantly different from the conditions that existed at the time of the calibration release (Sept 1975) would also affect the accuracy of the transit loss estimation.</p> <p>In addition, Livingston 1978 Report noted an administrative decision was made by the Colorado State Engineer and the Southeastern Colorado Water Conservancy District for reservoir to headgate transit loss determinations. It was noted that some of the bank storage would return for an extended period, particularly for water that is temporarily stored in the river banks. This decision appears to reflect the difficulty in distinguishing water that was part of a release from natural flow soon after the end of the release.”</p> <p>Based on the above, it appears that other river operations may result in the delay of the unconsumed portion return to the river, or in the diversion and/or consumption of the unconsumed transit loss.</p> <p>In CY 2011, the Operations Secretary appears to have ceased the practice of recovering transit loss attributable to bank storage. We are discussions as to how to bring this issue to closure.</p>	<p>Colorado’s basis is described in a memorandum to the Operations Committee captioned: “Response to (2007) Assistant Operations Secretary’s Report.</p>
<i>ARCA Committee or other general comment(s)</i>	

<ul style="list-style-type: none"> ■ Added to matrix at direction of Operations Committee in Dec 2008 ■ An investigation to determine transit losses and travel times of reservoir releases from Pueblo Reservoir to John Martin Reservoir is being conducted by Russell K. Livingston, to update a similar report he developed under the auspices of the U.S.G.S. in 1978. This investigation was commissioned by the Colorado Water Conservation Board, the Colorado Division of Water Resources, the Lower Arkansas River Valley Water Conservancy District and the Southeastern Colorado Water Conservancy District and is scheduled to be completed at the end of December 2010. Further discussion of this issue has been suspended by mutual consent pending consideration of the results of this investigation. ■ In CY 2011, Russ Livingston completed his transit loss study between Pueblo and John Martin Reservoirs.
--

40 – Resolved -- Exchange of daily reservoir status accounting
41 – Resolved -- Non-reporting of Section II(C)(1) determinations
42 – Resolved -- Summer season interruption of transfers from conservation storage to accounts
43 – Resolved -- Winter storage period interruption of transfers from summer conservation storage to accounts

44 – City of Lamar regulating account	
<i>Kansas Staff Position</i>	<i>Colorado Staff Position</i>
[Working on a current position related to the engineering report submitted in December 2007.]	City of Lamar requested a permanent account at December 2006 meeting of ARCA. Matter referred to the Engineering Committee.
<i>Kansas Staff Comments</i>	<i>Colorado Staff Comments</i>
The City of Lamar should propose an account in JMR to allow for the re-regulation of flows from other releases. Consideration should be given to conditions contained in the minutes of 1989 ARCA Annual meeting and Kansas comments from ARCA Special Meeting May 2002.	An engineering proposal describing proposed operations was provided to the Engineering Committee in December 2007.
<i>ARCA Committee or other general comment(s)</i>	
City of Lamar renewed their request at the December 2006 ARCA Annual Meeting / ARCA referred to Engineering Committee / engineering report provided in December 2007	
<ul style="list-style-type: none"> ■ Colorado and Kansas provided comments on the City of Lamar’s proposal in Dec 2008 ■ 	

50 – Commencement of a spill event	
ARCA Committee	Full ARCA
Issue Category & Priority	C – 6a
Legal – Policy – Technical	Policy
Kansas Staff Position	Colorado Staff Position
The language places the event on the physical operation of the projects control structure and not on the elevation of the water surface or some other trigger. Colorado's timing of spill accounting is not suggested in the governing language.	Compact Article IV C (3) provides that the conservation pool will be operated for the benefit of water users in CO and KS...as provided by the Compact. See also, Art. IV C (2).
Kansas Staff Comments	Colorado Staff Comments
Rely on the physical operations of the project control structure to govern the loss of account water. No change to the language is required, unless clarifying language is desired.	Kansas' position ignores Corps of Engineers exclusive authority to determine flood control releases when JMR surface elevation rises into flood pool space. Contrary to express language of 1980 Operating Plan, water does not "spill physically over the project's spillway" during flood operations. Flood releases are normally made through the outlet works.
ARCA Committee or other general comment(s)	
OS recommendation 12/08/03: amend Section II G of 1980 Operating Resolution to clarify criteria defining the commencement of spill.	
Operations recommended moving this issue to Full ARCA. (14 December 2004)	
Moved to Special Engineering Committee pursuant ARCA 2005-01.	

51 – Resolved -- Spilling accounts

52 – Upstream storage during JMR spill events	
ARCA Committee	Administrative & Legal
Issue Category & Priority	B - 10
Legal – Policy – Technical	Legal
Kansas Staff Position	Colorado Staff Position
Upstream storage is not in priority until Section II accounts is completely spilled.	Compact not intended to impair use of water by either state if no material depletion to useable Stateline flows results. Apportioning water during flood operations may be a Compact issue for negotiation by ARCA, but is clearly not a 1980 Operating Plan issue to be determined by the Operations Committee. See earlier exchange of letters between Mr. Simpson and Mr. Pope on this issue.
Kansas Staff Comments	Colorado Staff Comments
Discontinue the practice until authorized by resolution of ARCA.	
ARCA Committee or other general comment(s)	
OS recommendation 12/08/03: Operations Committee should refer this issue to the Administrative and Legal Committee.	
Operations Committee transferred this issue to the Administrative and Legal Committee by memo dated 8 October 2004.	

53 – Adjusted JMR inflows during times of spill	
ARCA Committee	ARCA
Issue Category & Priority	C – 6c
Legal – Policy – Technical	Policy*
Kansas Staff Position	Colorado Staff Position
The 1980 Operating Plan does not provide for these adjustments. *Only can be resolved if 52 is resolved	Adjustments to inflow are necessary to account for the effect of post-compact upstream storage during the period that JMR is spilling.
Kansas Staff Comments	Colorado Staff Comments
Discontinue the practice until authorized by resolution of ARCA.	Inappropriate accounting related to conservation storage balances jeopardizes entitlements afforded by Compact Article V (f)
ARCA Committee or other general comment(s)	
OS recommendation 12/08/03: Operations Committee should table this matter until issue #52 is resolved.	
Operations recommended moving this issue to Full ARCA. (14 December 2004)	
Moved to Special Engineering Committee pursuant ARCA 2005-01.	

54 – Resolved -- Section II spill volume during summer storage season
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60 – Section II(C)(2) compliance (Agreement B)	
ARCA Committee	Administrative & Legal
Issue Category & Priority	B - 9
Legal – Policy – Technical	Legal
Kansas Staff Position	Colorado Staff Position
District 67 priority calls under pre-JMR conditions are to occur when conservation storage is exhausted into accounts. Colorado does not comply with this requirement of the 1980 Operating Plan.	Agreement B is a separate document, not part of the 1980 Operating Plan, whereby Colorado water right owners agreed to subordinate certain aspects of their entitlement to enforce the priority of their water rights and is entirely consistent with administration of the priority system in Colorado. This issue is not properly before the Operations Committee.
Kansas Staff Comments	Colorado Staff Comments
Operate according to the 1980 Operating Plan as written or propose changes to the plan for consideration by the administration.	Agreement B is necessary to maintain the respective benefits of JMR between Colorado water rights above and below JMR granted under the Compact. It is not inconsistent with the Compact, the 1980 Operating Plan, or administration by Colorado of its priority system.
ARCA Committee or other general comment(s)	
No further progress can be made at this time.	
OS recommendation 12/08/03: Committee should refer this matter to the Administrative and Legal Committee with a recommendation that no further consideration be given to this issue.	
Operations Committee transferred this issue to the Administrative and Legal Committee by memo dated 8 October 2004.	
Moved to Special Engineering Committee pursuant ARCA 2005-01.	

61 – Resolved – Retroactive adjustments of accounting for prior years if accounting methods are revised
62 – Resolved -- OS Report status for 1994 through 2006
63 – Removed -- Status of Assistant Operations Secretary Reports: 1998, 1999, 2000, 2001 & 2002
64 – Resolved -- Assistant Operations Secretary Reports: purpose and timeliness
65 – Removed -- Consider Moving Date of Annual Meetings to January or February
66 – Resolved -- Need for definite process for introducing and resolving operational issues
67 – Resolved -- When issues are resolved, is it in the form of separate resolutions and /or revisions to the 1980 Operating Plan?

70 – Trinidad Reservoir: Passing of inflows exceeding 1,000 cfs	
<i>ARCA Committee</i>	Operations
<i>Issue Category & Priority</i>	
<i>Legal – Policy – Technical</i>	
<i>Kansas Staff Position</i>	<i>Colorado Staff Position</i>
Releases exceeding 1,000 cfs should be passed as soon as possible, up to the channel capacity called for.	December 3, 1999 letter from Hal Simpson to USBR includes revised ‘Criteria for Temporary Detention and Subsequent Release of Flood Flows Below Flood Control Capacity...’ recognizes a 3000 cfs ‘non-damaging flow’ constraint directed by the Corps of Engineers by letter dated April 16, 1993.
<i>Kansas Staff Comments</i>	<i>Colorado Staff Comments</i>
Inflows to Trinidad Reservoir exceeded 1,000 cfs on two separate occasions in August 2004. Those releases should have been passed through the reservoir and may have triggered a summer storage event at John Martin Reservoir.	The Water Commissioner requested that the release of these inflows be made: beginning at 1,000 cfs on Friday afternoon, August 6, 2004. He requested that the release be increased to 1,500 cfs on Saturday afternoon. The Corps rating curve for a downstream gage had a maximum release of 1,000 cfs. The Corps should reconsider the allowable release criteria in light of the USBR’s October 2009 Hydraulic Modeling Results. There is no controversy at issue between the states. Furthermore, ARCA has no authority to determine the non-damaging flow below Trinidad Reservoir. Therefore, this matter should be removed from the matrix.
<i>ARCA Committee or other general comment(s)</i>	
A letter was received from the Corps, dated 1 Nov 2004. This letter explains the events in August and steps that have been and will be taken to assure these releases will be passed in the future.	
Moved to Special Engineering Committee pursuant ARCA 2005-01.	
Channel capacity study for the Purgatoire River below Trinidad Reservoir through Trinidad, Colorado, has been undertaken in 2008.	

Notes on Water Issues Matrix

Resolutions:

- ❖ ARCA Adopted Resolution 2006-01 (John Martin Reservoir Permanent Pool Evaporation Method) on 12 Dec 2006 based on ARCA Special Engineering Committee Recommendation A
 - ❖ ARCA Adopted Resolution 2006-02 (Winter Water and District 67 Winter Water Storage Charge Holding Accounts in John Martin Reservoir) on 12 Dec 2006 based on ARCA Special Engineering Committee Recommendation B
Colorado should have a draft resolution on the Winter Water Program account. – May 2002
-- Kevin Salter responded to the Colorado draft resolution in October 2003
 - ❖ ARCA Adopted Resolution 2006- 03 (Transfer of Conservation Storage to Section II Accounts
under the 1980 Operating Plan) on 12 Dec 2006 based on ARCA Special Engineering Committee Recommendation C
 - ❖ ARCA Adopted Resolution 2006-04 (Section II Account Spill Volume) on 12 Dec 2006 based on ARCA Special Engineering Committee Recommendation D
 - ❖ For Issues #31 and 32, ARCA Special Engineering Committee Recommendation E addresses clarification of the 1980 Operating Plan for these two issues.
Issue #31 has been resolved, but need to look at clarification of the 1980 Operating Plan. Steve Witte has drafted proposed resolution for this clarification.
-- Kevin Salter has presented an interpretation of the 1980 Operating Plan that may negate the need for a resolution or amendment in August 2003.
 - ❖ xx
 - ❖ xx
- City of Lamar is expected to submit at the May ARCA meeting a resolution for a regulating account in JMR.
- Colorado indicated that this issue has been tabled indefinitely
 - LAWMA & DOW made presentation at December 2005 ARCA Annual Meeting
 - December 2006 ARCA referred renewed request to Engineering Committee

Water Issues Matrix Versions		
Version	Modification Date	Description of Modification(s)
		Issues #32 & 67 were added 24 October 2003 at a meeting between State staffs
2002issues_table09b.doc	14 June 2004	Incorporate changes suggested by Steve Witte as transmitted by email dated 21 Jan 2004. Change status of issues based on Joint categorization of issues document dated 5 Feb 2004. I also made formatting and grammatical changes (KLS).
2005issues_table09c.doc	19 August 2004 12 Nov 2004 19 April 2005	-- Add a Trinidad Issues category. Specifically, Issue #70, the passing of inflows exceeding 1,000 cfs. -- Show Issue 52 & 60 as being transferred to the Admin & Legal Committee. -- add Issue #13 & 24 (19 April 2005), make formatting changes to table, adjust according to 19August 2004 Joint Prioritization memo, rename columns combining Legal, Policy & Technical and adding ARCA Committee and issue categorization
2005issues_table09d_letter.doc	20 April 2005	-- Changed format to 8-1/2 by 11 inch and reorganize sections -- Add actions taken at ARCA CY2004 Annual meeting
2006issues_table09d_letter.doc	11 December 2006	-- Add actions proposed by the ARCA Special Engineering Committee (created by ARCA Resolution 2005-01) on Issues 10, 20, 21, 30, 32, 42, 43 & 54.
2006issues_table10a_letter.doc	18 December 2006	-- Add ARCA actions taken at the 2006 ARCA Annual meeting -- Remove issues resolved by ARCA accepting Special Engineering Committee recommendations
2006issues_table10b_letter.doc	19 December 2006	-- Steve Witte offered suggestions for modifications in conference call with Kevin Salter on this date.
2007issues_table10bb_letter.doc	11 April 2007	-- working draft -- added Issue #25 & 26 according to the Operations Committee instructions -- added ARCA Resolutions information -- added ARCA Special Engineering Committee Recommendations on 31 & 32
2007issues_table10c.doc	1 December 2007	-- added Table of Contents -- modified according to 19 Nov OS-AOS meeting
2008issues_table10d.doc 2008issues_table10e.doc	1 December 2008	-- updated issues / Recommendation G / added City of Lamar / removed resolved issue(s)
2009issues_table11a.doc	22 December 2008	-- added reservoir-to-reservoir delivery issue -- updated issues / ARCA resolution adopting Recommendation G
2010issues_table11c.doc	17 September 2010	-- added Issue 27 (Section III.A language) -- updated Issue 33 positions & comments
2011issues_table11d.doc	25 November 2011	-- update 22 & 33 language

Attachment 4

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Water Issues Matrix Summary Table

Version Date: 9/17/2010

Issue #	Description	April 2005	Pending	Suspended	Removed	Resolved	ARCA Resolution	Comment
35	Totals	31	10	3	4	18		
10	Permanent Pool evaporation charges calculated by pro rata volume vs. incremental area	X				X	2006-01	Special Engineering Committee Recommendation A
11	Transfer of Account water to Permanent Pool during flood control operations in JMR	X			X			
12	Consideration of new sources for permanent pool water	X		X				LAWMA & CDOW made a conceptual proposal before Dec 2005 ARCA Annual Meeting. Issue has been removed from consideration by LAWMA.
13	1980 Operating Plan's Restriction on use of Section III related to Perm Pool	X			X			Steve Witte will review this to determine if it is still an issue.
20	Winter Water Account of convenience	X				X	2006-02	Special Engineering Committee Recommendation B
21	Timely distribution of Section III storage charge during Pueblo Winter Water Storage Program (PWWSP)	X				X	2006-02	Special Engineering Committee Recommendation B
22	Criteria for determining Section III storage under the Pueblo Winter Water Storage Program (PWWSP)	X	X					
23	Reporting of Winter Water vs. Winter Compact storage split calculation	X				X		See Joint Recommendations as transmitted by Operations Committee letter dated 19 August 2004.
24	Utilization of "Summer storage season" as defined by the 1980 Operating Plan	X	X					kls -- consider re-characterizing this issue under Issue 60 and remove as a separate issue per Steve's recommendation on 19 Nov 2007.
25	Criteria for Summer storage event trigger -- Section II.B 1		X					Placed on matrix in April 2007 / not currently before the Special Engineering Committee
26	Section II limitations on use made of account water to irrigation only		X					Placed on matrix in April 2007 / not currently before the Special Engineering Committee
27	First reference to Section II in Section III A appears to be inappropriate		X					Placed on matrix December 2009

Water Issues Matrix Summary Table

Version Date: 9/17/2010

Issue #	Description	April 2005	Pending	Suspended	Removed	Resolved	ARCA Resolution	Comment
30	Determination of transit loss under Section II(E)(4)	X				X		Resolved pursuant to an Agreement between State & Chief Engineers (December 2006).
31	Sections II (E)(4) and III (D) are unclear as to where transfers to make up deficits should be made	X				X	2007-05	Subject of Special Engineering Committee Recommendation E to be considered at the 2007 ARCA Annual meeting.
32	How should transit loss account be used?	X				X	2007-05	Subject of Special Engineering Committee Recommendation E to be considered at the 2007 ARCA Annual meeting.
33	Transit Loss on Reservoir-to-reservoir deliveries (e.g., deliveries of transmountain water to permanent pool)		X					Added in December 2008
40	Exchange of daily reservoir status accounting	X				X		See Joint Recommendations as transmitted by Operations Committee letter dated 19 August 2004.
41	Non-reporting of Section II(C)(1) determinations	X				X		See Joint Recommendations as transmitted by Operations Committee letter dated 19 August 2004.
42	Summer season interruption of transfers from conservation storage to accounts	X				X	2006-03	Special Engineering Committee Recommendation C
43	Winter storage period interruption of transfers from summer conservation storage to accounts	X				X	2006-03	Special Engineering Committee Recommendation C
44	City of Lamar regulating account	X		X				In Engineering Committee / pending further action by City of Lamar
50	Commencement of a spill event	X	X					
51	Spilling accounts	X				X	2007-06	Subject of Special Engineering Committee Recommendation F to be considered at the 2007 ARCA Annual meeting.
52	Upstream storage during JMR spill events	X	X					
53	Adjusted JMR inflows during times of spill	X	X					
54	Section II spill volume during summer storage season	X				X	2006-04	Special Engineering Committee Recommendation D
60	Section II(C)(2) compliance (Agreement B)	X	X					

Water Issues Matrix Summary Table

Version Date: 9/17/2010

Issue #	Description	April 2005	Pending	Suspended	Removed	Resolved	ARCA Resolution	Comment
61	Retroactive adjustments of accounting for prior years if accounting methods are revised	X				X	2008-03	Special Engineering Committee Recommendation G
62	OS Report status for 1994 through 2006	X				X	2008-03	Special Engineering Committee Recommendation G
63	Status of Assistant Operations Secretary Reports: 1998, 1999, 2000, 2001 & 2002	X			X			
64	Assistant Operations Secretary Reports: purpose and timeliness	X				X		See Joint Recommendations as transmitted by Operations Committee letter dated 19 August 2004.
65	Consider Moving Date of Annual Meetings to January or February	X			X			
66	Need for definite process for introducing and resolving operational issues	X				X		See Joint Recommendations as transmitted by Operations Committee letter dated 19 August 2004.
67	When issues are resolved, is it in the form of separate resolutions and /or revisions to the 1980 Operating Plan?	X				X		Process has been established to address resolution of issues as they were resolved.
70	Trinidad Reservoir: Passing of inflows exceeding 1,000 cfs	X		X				