



March 8, 2018

Mr. Steve Witte, P.E.
Division Engineer
Colorado Division of Water Resources
310 E. Abriendo Ave., Suite B
Pueblo, CO 81004

RE: 2018-2019 Rule 10 Plan Request - Lower Arkansas Valley Water Conservancy District

Dear Mr. Witte:

Pursuant to the Compact Rules Governing Improvements to Surface Irrigation in the Arkansas River Basin in Colorado (Rules) approved in Case No. 09CW110, the Lower Arkansas Valley Water Conservancy District (Lower Ark) requests approval of this Rule 10 Plan for the 2018-2019 Plan Year (May 1, 2018 through April 30, 2019). This letter identifies the members included in this Plan, outlines the modeling procedure used, displays the total estimated return flow maintenance requirements (RFMR), lists the supplies to be used for these requirements and describes the proposed operations and accounting for this plan.

I. Introduction

After operating a single Rule 10 Plan to cover irrigation improvements within the Lower Ark District the first two years after adoption of the Rules, Lower Ark recognized the unique needs of the Fort Lyon Canal Company (FLCC) Rule 10 Plan members and determined that these needs could be better addressed under a separate Rule 10 Plan. As a result, a separate Fort Lyon Rule 10 Plan was prepared and approved for Fort Lyon members for the 2013-2014 Plan Year. This approach of operating a separate Rule 10 Plan for Fort Lyon members continues for the 2018-2019 Plan Year. This specific request is for the other Rule 10 Plan operated by Lower Ark, also referred to as the Non-Fort Lyon Rule 10 Plan, which includes farms with surface irrigation improvements under fourteen other ditches located within the Lower Ark District boundaries.

A. Membership

This Rule 10 Plan includes irrigators with surface irrigation improvements whose lands are supplied with surface water from one of fourteen ditches, including the Amity, Baldwin Stubbs, Bessemer, Blunt, Buffalo, Catlin, Fort Bent, High Line, Holbrook, Lamar, Las Animas Consolidated, Otero, Oxford and the Rocky Ford Ditch.

B. Project Area

The project area for the Lower Ark Rule 10 Plan includes acreage served by the fourteen ditch companies mentioned previously. The irrigated land served by these canals extends from

Pueblo Reservoir to the Kansas state line. Acreages for all farms included in this Rule 10 Plan are provided in GIS format (shapefiles) as an electronic submittal attachment to this request.

C. Members in Plan

The irrigators with improvements whose lands lie within the five counties that make up the Lower Ark District boundaries (excluding those served by the Fort Lyon Rule 10 Plan) were given the opportunity to enroll in this 2018-2019 Rule 10 Plan. To enroll, each participant was required to provide the type of improvement installed, a map of the farm with historical and improved acreages, number of shares serving the farm, head stabilization pond surface acreage, legal description of farm, owner address and contact information. Members were also required to confirm that the irrigation improvement they have included in this 2018-2019 Rule 10 Plan request receives surface water as some portion of its water supply, as required by the Rules. A list of members including their farm identification number (labeled GIS_ID), name, address, type of irrigation improvement, ditch company name and share ownership, historical and improved acreages, head stabilization pond surface area, location of impact to the Arkansas River or tributary and projected 2018-2019 Plan Year deficit or accretion are shown in Appendix A. Table 1, below, lists each enrolled member and their address.

Table 1. Members Participating

Owner Name	Address
Alfredo Estrada	1720 Elm Ave. Rocky Ford, CO 81067
Alvin and Linda Gardner	26825 Co Rd DD, Rocky Ford, CO 81067
Apishapa Canyon Ranch LP	17001 Co Rd 1440, Wolfforth, TX 79382
Arkansas Valley Research Center	27901 Co Rd 21, Rocky Ford, CO 81067
Bret Stowers	11258 Rd JJ, Manzanola, CO 81058
C.L. Reese	28948 Co Rd 30.5, Holly, CO 81047
Caldwell Bros	25026 Co Rd 19, Rocky Ford, CO 81067
Caldwell Farms	25026 Co Rd 19 Rocky Ford, CO 81067
Carol Flint	34500 Rd 13, Lamar, CO 81052
CBDRx	1003 Constitution Rd, Pueblo, CO 81001
Danny Vaughan	P.O. Box 8, Cheraw, CO 81030
Darnell Johnson	34584 Co Rd 5.25, Fowler, CO 81039
Dave Kaess	22661 Co Rd 24 La Junta, CO 81050
David Mayhoffer	25510 Hwy 10, La Junta, CO 81050
Diamond A Farms, Inc.	PO Box 551, Rocky Ford CO 81067
Diamond A Farms, Inc. & Fred Estrada	PO Box 551, Rocky Ford Co 81067
DiSanti Farms	29114 South Road, Pueblo, CO 81006
Dustin and Staci DeWitt	7395 Hwy 50, Lamar, CO 81052
FBO Wurst	1001 Willow Valley Drive, Lamar, CO 81052
Frank Vazquez	P.O. Box 235 Holly, CO 81047
Gardner Farms	26825 Co Rd DD, Rocky Ford, CO 81067
Hans Fedde	30306 Co Rd 4, Fowler, CO 81039
Haynow Farms	1490 Judson Dr. Boulder, CO 80305
Heath & Rhett Proctor	16861 Hwy 202, Rocky Ford, CO 81067
Hirakata Farms	22161 Co Rd CC, Rocky Ford, CO 81067
Jared and Mathew Gardner	26825 Co Rd DD, Rocky Ford, CO 81067

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Jim Hanratty	38537 South Rd, Pueblo, CO 81006
John & Connie Deforest	25243 Co Rd KK Bristol, CO 81047
Kelly & Jodi Bond	1820 Avondale Blvd, Avondale, CO 81022
Kenneth & Arlene Schweizer	30102 Co Rd 15, Rocky Ford, CO 81067
Kenneth, Arlene & John Schweizer	30102 Co Rd 15, Rocky Ford, CO 81067
Knapp Farms	29742 Highway 71 Rocky Ford, CO 81067
Lakeshore Farms, LLC	1803 Woodfield Dr., Suite B, Savory, IL 61874
Larry Gardner	13251 Co Rd EE, Las Animas, CO 81054
Lawrence Schenck	96 Hughes Ct., Holly, CO 81047
Lesley Mills	16831 Hwy 50, Rocky Ford, CO 81067
Lusk Farms, LLC	28183 Co Rd 24.5 Rocky Ford, CO 81067
Marvin Schlegel	24775 Co Rd 24 La Junta, CO 81050
Mary & Robert Morrison Trust	20 Cassidy Dr. Durango, CO 81303
Matthew Gardner	26825 Co Rd DD, Rocky Ford, CO 81067
Miles Bond	28229 C.R. 18, Rocky Ford, CO 81067
Nicholas Behm	10145 Co Rd JJ.5 Manzanola, CO 81058
Nick Knapp	29676 Highway 71 Rocky Ford, CO 81067
Ordway Feedyard	19424 Hwy 96, Ordway, CO 81063
Paul & Susan Casper	504 Kimble, Swink, CO 81077
Ridley Farms and Ranches, LLP	26960 Hwy 101, Las Animas, CO 81054
Robin Jacquart	18938 Co Rd Z, Rocky Ford, CO 81067
Scott, Kyle & Caitlin Hansen	33859 Co Rd 30 La Junta, CO 81050
Thomas C. & Karen S. Henderson	29501 Co Rd 3, Lamar, CO 81052
Tom Rusler	48911 Olson Rd., Avondale, CO 81022
Tri-State G&T Association, Inc.	P.O. Box 33695, Denver, CO 80233

II. Modeling

A. Generally

Modeling was conducted using the Irrigation System Analysis Model (ISAM), which was developed by the Colorado Division of Water Resources and the use of which is incorporated into the Rules to provide a farm specific comparison of pre-improvement to post-improvement return flows. ISAM is a spreadsheet-based model that uses the primary inputs from the H-I model as its basis to complete farm-specific calculations of return flows associated with surface water irrigation on a particular ditch. The effect to the river/tributary is the difference in these pre-improvement versus post-improvement return flows, which are comprised of a tailwater and deep percolation component.

The State Engineer's Office (SEO) developed code used in Matlab that processes individual ISAM runs for each irrigation improvement covered in this Rule 10 Plan request simultaneously. This method does not alter ISAM in any way, but rather allows for more efficient modeling by

eliminating the need to complete individual spreadsheet runs for each covered irrigation improvement.

Lower Ark determined a change in return flow amounts (deficit or accretion) for each farm by modeling them separately in ISAM using average monthly diversions over the last ten years. A deficit occurs when the installation of a surface improvement results in a decrease in return flows as compared to the pre-improvement condition. An accretion occurs when the installation of the surface improvement results in an increase in return flows. Projected annual deficits and/or accretions for each farm in this Plan are shown in Appendix A. A negative value represents an accretion to the river/tributary from the improvement and a positive value represents a deficit.

B. Pond Seepage Estimation Method

Just under half of the center pivot sprinklers in this Rule 10 Plan request have head stabilization ponds installed to supply irrigation water to the sprinkler. These ponds settle sediment and provide a more stable water surface elevation for more efficient pumping to the sprinkler. As water is temporarily stored in these ponds, seepage percolates into the ground water table and is considered return flow. Ponds are located on the same ground that was historically flood/furrow irrigated and therefore contribute return flows to the same river reach as historically occurred. Head stabilization pond seepage losses are accounted for in ISAM as a direct credit toward return flow changes at a farm. ISAM uses the following assumed seepage factors and criteria to determine the amount of seepage for each pond:

- Seepage Rate = 0.35 feet per day
- Pond days full = $88 * \text{monthly diversion} / \text{average annual diversion (1950-2018)}$ (limited by days in month with only 15 days in March/November)
- Pond evaporation as “shallow lake” evaporation is be considered within water budget calculations. For projection modeling (i.e. ISAM spreadsheets), shallow lake evaporation could be calculated from standard NOAA/SEO guidelines. For operations (i.e. Rule 10 operations tool), shallow lake evaporation is calculated as $0.72 * 1.2 * \text{ETrs}$ where ETrs is derived from CoAgMet weather stations and ETrs is reference evapotranspiration.

C. Groundwater Lagging

To calculate the delayed effects of the change in return flows, the deep percolation component of the return flows was lagged by applying unit response functions (URFs). These were obtained from the Ground Water Analysis Model (GWAM), which is a groundwater lagging model originally developed for the H-I model. The H-I model uses specific URFs developed for each of the twenty-one river reaches along the Arkansas River. River return flow reaches are defined within the H-I Model. These URFs were applied on a monthly time-step to the deep percolation component of each farm’s respective return flow deficits calculated by ISAM. The URFs are unique for each ditch and return flow reach combination, which determined the appropriate set of URFs to apply to each farm. This process results in a monthly return flow

value for both surface (directly from ISAM) and deep percolation (lagged through GWAM URFs from ISAM) return flows.

D. Return Flow Maintenance Requirement

The total difference in pre and post improvement return flows for each farm in this Plan were summed by month for each river reach to determine the projected monthly return flow maintenance requirement. They also include all lagged deficits or accretions from farms included in this Rule 10 Plan from previous years. These projected requirements are shown in Table 2, below. A negative value represents an accretion to the river from the improvement and a positive value represents a depletion. Note that accretions occurring under this Plan may be used to satisfy return flow maintenance requirements under both the Fort Lyon Rule 10 Plan and this Non-Fort Lyon Rule 10 Plan.

Table 2. Projected Return Flow Maintenance Requirement (acre-feet)

River Reach	May-18	Jun-18	Jul-18	Aug-18	Sept-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Total
1	0.3	-2.4	-1.2	10.1	7.0	8.8	0.1	-7.5	-5.2	-4.1	0.6	-11.9	-5.4
2	-6.8	-9.3	-8.0	-3.6	-2.2	-1.4	-2.3	-2.9	-2.0	-1.6	-2.3	-10.4	-52.8
3	-3.2	-4.3	-3.7	-1.8	-1.1	-0.7	-1.0	-1.2	-0.8	-0.7	-1.1	-4.7	-24.2
4	-1.2	-1.2	-1.0	-0.5	0.2	0.4	0.3	0.4	0.5	0.5	0.4	0.3	-1.1
5	3.9	5.7	4.8	4.6	3.1	3.1	2.2	-0.1	-0.2	-0.3	1.9	4.2	33.0
6	-0.3	0.1	1.3	7.1	5.4	-2.3	-14.1	-8.8	-6.6	-4.8	1.9	1.8	-19.3
7	50.6	64.8	59.2	69.3	56.5	14.6	-51.4	-90.4	-75.2	-65.9	-9.7	33.7	56.0
8	-22.1	-24.8	-21.6	-16.3	-15.2	-23.5	-30.9	-26.7	-22.1	-19.6	-20.6	-25.2	-268.7
9	-15.6	-21.1	-25.7	-26.3	-23.9	-20.3	-16.4	-13.5	-11.2	-9.7	-9.2	-11.2	-204.2
10	12.2	17.6	12.2	10.0	10.2	12.0	1.5	-8.6	-7.5	-6.9	5.5	14.0	72.3
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
12	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	-1.5
13	7.1	11.9	5.4	3.1	1.5	0.5	-8.3	-8.2	-7.1	-6.0	-5.1	3.8	-1.4
14	-2.6	-3.2	-4.0	-4.4	-4.8	-4.8	-4.9	-4.1	-3.6	-3.1	-2.9	-2.4	-44.7
15	-1.7	-2.2	-3.0	-3.6	-4.1	-4.2	-4.5	-3.8	-3.1	-2.6	-2.3	-1.7	-36.8
16	0.1	0.9	-0.2	-0.8	-1.4	-1.7	-3.3	-3.6	-3.4	-3.1	-2.6	-0.5	-19.6
17	4.5	5.5	4.6	2.4	1.1	-1.3	-7.0	-9.0	-7.6	-6.5	-4.6	2.6	-15.3
18	-3.9	-0.9	-1.5	-6.3	-11.8	-17.3	-23.1	-17.3	-13.5	-11.1	-9.3	-5.7	-121.7
Total	21.3	37.2	17.3	42.7	20.3	-38.4	-163.4	-205.4	-168.8	-145.7	-59.2	-13.5	-655.5

The total net RFMR projected for the 2018-2019 Plan Year is -655.5 acre-feet or 655.5 acre-feet of accretions. Of this amount, 414.4 acre-feet of the projected RFMR is expected as an accretion above John Martin Reservoir and 241.1 acre-feet is expected as an accretion below.

III. Return Flow Maintenance Supplies

Lower Ark has adequate water supplies available to meet all return flow maintenance requirements under this Rule 10 Plan through the use of several water supplies. Lower Ark also operates a Rule 10 Plan for Fort Lyon irrigation improvements that is anticipated to generate accretions, or credits, in excess of return flow maintenance requirements. If available, these accretions will be used to meet return flow maintenance requirements under this Plan. Sources of return flow maintenance water available for use in this Plan are discussed in detail, below. During the year, additional water supplies may become available that would allow Lower Ark to retain its stored water supplies for later release and/or to reduce transit losses. Use of these additional supplies in plan operations would be subject to an amendment to this Rule 10 Plan.

A. Trans-basin Water in Pueblo Reservoir

Currently, Lower Ark has approximately 1,925 acre-feet of fully consumable trans-basin water residing in their Pueblo Reservoir Excess Capacity account that will be delivered from either Pueblo Reservoir or a trade via Lake Meredith. Lake Meredith releases will be either releases from the fully-consumable portion of Colorado Canal shares owned by Lower Ark or made possible through the trade of a portion of Lower Ark's water supply in Pueblo Reservoir with Colorado Canal water owned by either Colorado Springs Utilities or Aurora Water and stored in Lake Meredith. Such a trade would be beneficial to both parties by avoiding transit losses on return flow maintenance water and by removing the need for physical exchanges of Colorado Canal water from storage in Lake Meredith into Pueblo Reservoir. Whether such a trade will be available and the extent of such a trade does not affect the ability of Lower Ark to operate this Rule 10 Plan.

While not a "source" for this Rule 10 Plan, it is currently anticipated that trades may also be accomplished with the sources identified herein and Catlin Canal Company fully-consumable water available under the HB 1248 Catlin Pilot Project, as approved by the Colorado Water Conservation Board on January 27, 2015. This may occur at times when historical consumptive use water is available from the shares participating in the Catlin Pilot Project in reaches below the point of accretion and there are return flow obligations for this Rule 10 Plan in those lower reaches. In such circumstances, trades may be utilized between water in Lower Ark's Pueblo Reservoir account and Catlin Pilot Project historical consumptive use water in order to reduce transit losses that would otherwise occur via release and delivery of water from Pueblo Reservoir to the point of return flow obligation. Any such trades under this Rule 10 Plan shall be conducted in compliance with the terms and conditions of that CWCB approval. Whether such a trade will be available and the extent of such trade does not affect the ability of Applicant to operate this Rule 10 Plan.

B. Schweizer Recharge Pond Return Flows

Lower Ark tested the Schweizer Recharge Pond during the summer of 2014 by performing a full draw down test using Lower Ark's fully consumable trans-basin water supplies. After

subtracting out evaporation, 131.8 acre-feet of pond seepage was credited to this Rule 10 Plan. Due to the lagging, 11.4 acre-feet will be available for use during the 2018-2019 Plan Year.

During November and December of 2017, Lower Ark delivered 45.6 acre-feet of fully-consumable water to the Schweizer Recharge Pond and after accounting for evaporation 45.0 acre-feet was credited to this Rule 10 Plan. 15.2 acre-feet will be available for use during the 2018-2019 Plan Year. The monthly return flow totals for both recharge operations are shown in Table 3, below.

Table 3. Schweizer Recharge Pond Return Flows (acre-feet)

	May-18	Jun-18	Jul-18	Aug-18	Sept-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Total
2014 Recharge	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	0.9	0.8	0.8	0.8	11.4
2017 Recharge	1.8	1.7	1.6	1.4	1.3	1.2	1.2	1.1	1.0	1.0	1.0	0.9	15.2
Total Available	2.9	2.8	2.6	2.4	2.3	2.2	2.1	2.1	1.9	1.8	1.8	1.7	26.6

The Schweizer Recharge Pond is located in the SW1/4 of the NW1/4 of Section 32, T22S, R57W of the 6th P.M., in Otero County and therefore provides return flow maintenance supplies to River Reach No. 7 and downstream reaches.

C. Return Flows from 2016 and 2017 Leases to Catlin Canal

During the spring of 2016, Lower Ark leased 1,163 acre-feet of fully-consumable water to the Catlin Canal that they in-turn used for irrigation during March and April of 2016. Similarly, during the spring of 2017 Lower Ark leased an additional 657 acre-feet of fully consumable water to the Catlin Canal that they also used for irrigation during April of 2017. Return flows from these irrigation uses were calculated and lagged using GWAM and will be applied as credits to this Rule 10 Plan. 66.2 acre-feet will be available for use during the 2018-2019 Plan Year. The monthly return flow totals and the respective river reach that they will accrue to are shown in Table 4, below.

Table 4. Return Flows from 2016 and 2017 Leases to Catlin Canal (acre-feet)

River Reach	May-18	Jun-18	Jul-18	Aug-18	Sept-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Total
6	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	7.1
7	7.4	6.8	6.2	5.7	5.3	4.9	4.5	4.2	3.9	3.6	3.4	3.2	59.1
Total	8.2	7.5	6.9	6.4	5.9	5.5	5.1	4.7	4.4	4.1	3.8	3.6	66.2

D. PBWW Lease

Lower Ark has acquired 500 acre-feet of fully consumable water from Pueblo Board of Water Works (PBWW) through their 2018 bid process. Lower Ark has not yet requested delivery of this water and has until March of 2019 to take delivery.

E. Other Sources

Other potential sources that may become available to Lower Ark for use in this Rule 10 Plan include: fully consumable sources from PBWW not already incorporated in this Rule 10 Plan, unconsumed transit losses that occur from a Colorado Parks & Wildlife release to John Martin Reservoir, fully consumable portion of water available from an SWSP or IWSA request or a future Super Ditch pilot project under the HB 1248 Pilot Program, Colorado Springs Utilities supplies from Pueblo Reservoir or Lake Meredith, Busk Ivanhoe return flows, excess Rocky Ford Ditch water and/or return flows, Lower Ark-owned supplies that include Twin Lakes and/or Colorado Canal paired shares, and/or return flows that are claimed and allocated through the Fryingpan-Arkansas Project water use by area canal companies. Any use of these other potential water supplies to satisfy return flow maintenance requirements would be addressed in a future request for an amendment to this Rule 10 Plan.

IV. Operations

Lower Ark has developed an operations plan to ensure supplies will fulfill return flow maintenance requirements. This Plan will first take credit for any accretions available under this Rule 10 Plan during the same month in which they accrue. If available return flows credits exceed requirements in the reach where they accrue, they will be applied to the next downstream reach and would be assessed transit losses by the Division 2 office, if appropriate.

After applying accretions available under this Rule 10 Plan, it will utilize available return flow credits to meet return flow maintenance requirements as follows:

1. Accretions available from the Fort Lyon Rule 10 Plan operations
2. Pond seepage credits resulting from Schweizer Recharge Pond operations during 2014 and 2017
3. Returns flows from fully-consumable water leased to the Catlin Canal for irrigation during 2016 and 2017
4. Additional Fry-Ark return flows not used in the Fort Lyon Rule 10 Plan (with SECWCD and Division 2 office consent)

Any RFMRs remaining after applying these return flows would be satisfied through the release of water stored in Pueblo Reservoir and/or Lake Meredith to the mainstem river reaches not fulfilled. RFMRs will be updated monthly as actual diversion, potential evapotranspiration and effective precipitation data becomes available from the Division 2 Office and applicable CoAgMet weather stations.

The Division 2 Office utilizes the Livingston transit loss model spreadsheets to estimate transit losses in the lower Arkansas River. Lower Ark estimated transit losses using transit loss per river mile factors from the Livingston model spreadsheet representing “average river conditions”. Transit losses range from 0.12% to 0.17% per river mile, depending on river reach.

A. Plan Year Simulation

Lower Ark has conducted a simulation of the 2018-2019 Plan Year to ensure that supplies will fulfill return flow maintenance requirements. This simulation, which is attached as an electronic submittal with this request, follows the operations plan described above, by first applying any available return flow credits to meet obligations and, subsequently, using reservoir releases.

Projected ISAM modeling results, combined with the availability of the return flow credits described above, are projected to satisfy all return flow maintenance requirements for this Plan during the 2018-2019 Plan Year, except during August, September and October. Since these obligations are projected to occur upstream of where the outlet from Lake Meredith reaches the river, releases are only expected to be made from Pueblo Reservoir. These projected releases total 27.0 acre-feet and are shown in Table 5, below.

Table 5. Projected Reservoir Releases (acre-feet)

Release From:	May-18	Jun-18	Jul-18	Aug-18	Sept-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Total
Pueblo Reservoir	0.0	0.0	0.0	13.0	9.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0
Lake Meredith	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.0	0.0	0.0	13.0	9.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0

Consistent with the terms and conditions of the approved 2017-2018 Rule 10 Plan (Section F.10), it is anticipated that the return flow maintenance deliveries for November through March will be delayed and combined into a single delivery scheduled for March, after winter water storage ends. This delivery may be to the conservation storage account within John Martin Reservoir or in such other manner as may be directed by the Division 2 Engineer. This will provide wintertime maintenance return flows at a time when they will be most beneficial to Arkansas River water rights.

V. Accounting

Lower Ark will submit monthly accounting to the Division 2 Office for this Rule 10 Plan using the same general Excel spreadsheet used for the plan year simulation. It will include the estimated return flow maintenance requirements to allow for easy comparison. Following each month, Lower Ark will coordinate with the SEO to input actual canal diversions, potential evapotranspiration and effective precipitation data recorded from the month into the operational version of ISAM to determine RFMRs summed by river reach. Return flow credits will then be determined and applied as described above. This accounting will also include and apply any other supplies that become available and are approved for use during the 2018-2019 Plan Year.

These accounting files may be revised as operations, participants and/or supplies are updated. All files will include at least the information contained in this request, and may add functionality as the operation of the Rule 10 Plan progresses. Lower Ark will work with the Division 2 Office in making any revisions to these accounting files.

VI. Proposed Terms and Conditions

1. Additional irrigation systems and/or additional sources of water for maintenance flows may be included in this Plan only if an amendment to the approved Plan is submitted, circulated with time for comments as required by the Rules, and approved. Any such requests for amendment will contain all requisite information under the Rules. Lower Ark acknowledges that approval of any amendment will be contingent upon a demonstration of sufficient return flow maintenance water to cover the additional return flow deficits caused by added systems.
2. Lower Ark will maintain and make available for inspection a copy of the form required by Rule 8.A, signed by the owner or user of the surface water irrigation system or his or her Designated Agent, for each improvement covered under this Plan.
3. Releases of return flow maintenance water will be coordinated with the Division Engineer's Office to ensure proper maintenance of return flows.
4. Lower Ark will maintain return flows for deficits occurring after the expiration date of this Plan which are caused by deliveries of surface water to the improvements during the life of the Plan.
5. Lower Ark will provide monthly accounting to the Division Engineer by the 10th day of each month, compliant with approved accounting forms. Monthly return flow obligations and monthly deliveries of maintenance flows, minus transit losses, will be reflected in each of the mainstem river reaches of the GWAM. Lower Ark will provide an annual accounting of actual operations under the Plan during the 2018-2019 Plan Year in a form acceptable to the Division Engineer.
6. Credits and deficits will only be carried forward one month, except that maintenance return flows for November through February may be combined into one delivery in March.
7. Any use of Fryingpan-Arkansas Project water or structures under this Plan will be in compliance with the SECWCD's water allocation principles, including the limit that it may only use used to maintain return flows from improvements located within the SECWCD's boundaries.
8. Lower Ark will promptly report to the Division Engineer's Office any lack of compliance with this Plan by the member systems in this Plan. Lower Ark will monitor the overall performance of this Plan by comparing the approved operational conditions with the actual conditions, after determining the actual conditions in cooperation with the Division Engineer's Office.

VII. Conclusion

This Lower Ark Rule 10 Plan request includes participants with irrigation system improvements located within ditch service areas along the Arkansas River from Pueblo Reservoir to the Kansas state line. Each participant has given its permission for Lower Ark to make a request for the Rule 10 Plan on their behalf and to include the information necessary for determination of their return flow maintenance requirements for the 2018-2019 Plan Year. This information was calculated individually in accordance with the Rules set forth by the State Engineer's Office. Although the projected total RFMR is an accretion of 655.5 acre-feet for the 2018-2019 Plan Year as a whole, any monthly deficits in a specific river reach are projected to be met with water supplies Lower Ark has secured and are available as recharged pond seepage credits, fully-consumable irrigation return flows from leases to the Catlin Canal, accretions from the Fort Lyon Rule 10 Plan operations, additional Fry-Ark return flows not used in the Fort Lyon Rule 10 Plan (with SECWCD and Division 2 office consent) and fully consumable water stored in Pueblo Reservoir (as may be traded into Lake Meredith). It is my opinion that this Rule 10 Plan conforms to the Rules set forth by the State Engineer's Office and the decree and stipulations in Case No. 09CW110.

If you have any questions or concerns please contact me at 719-254-5115.

Sincerely,



Jack Goble, P.E.
District Engineer
Lower Arkansas Valley Water Conservancy District

cc: Kevin Rein, P.E.
Bill Tyner, P.E.
Jay Winner
Peter Nichols
Megan Gutwein

2018-2019 Non-Fort Lyon Rule 10 Plan
Appendix A - Non-Fort Lyon Farm Information

GIS_ID	Owner Name	Address	Imprvmt.	Ditch	Shares	PreFlood (ac.)	PreSprink (ac.)	PostFlood (ac.)	PostSprink (ac.)	PostDrip (ac.)	Pond (ac.)	User	Upper Reach	Lower Reach	TW Reach	Deficit (+) or Accretion (-) (ac-ft)
51	Alvin and Linda Gardner	26825 Co Rd DD, Rocky Ford, CO 81067	Sprinkler	Holbrook	326.7	203.4	125.5	111.5	184.1	0.0	0.0	12	6	8	7	41.2
52	Gardner Farms	26825 Co Rd DD, Rocky Ford, CO 81067	Sprinkler	Catlin	100	106.2	0.0	18.7	80.9	0.0	0.0	9	6	8	7	-26.4
53	Alvin and Linda Gardner	26825 Co Rd DD, Rocky Ford, CO 81067	Sprinkler	Catlin	328	318.5	0.0	118.7	110.1	0.0	0.0	9	6	8	7	-231.1
55	Matthew Gardner	26825 Co Rd DD, Rocky Ford, CO 81067	Sprinkler	Catlin	141	147.6	0.0	23.4	120.3	0.0	0.0	9	6	8	7	-3.3
75	FBO Wurst	1001 Willow Valley Drive, Lamar, CO 81052	Sprinkler	Amity	336	430.1	0.0	188.8	189.5	0.0	0.8	17	13	18	13	5.9
86	Tom Rusler	48911 Olson Rd., Avondale, CO 81022	Sprinkler	Bessemer	1743.3	1619.0	0.0	832.4	663.6	0.0	3.9	1	1	1	1	61.2
93	Hirakata Farms	22161 Co Rd CC, Rocky Ford, CO 81067	Drip	Catlin	79	68.8	0.0	13.9	0.0	54.9	0.0	9	6	8	7	-9.4
96	Mary Morrison & Robert Morrison Trust c/o Mary Eileen Wasserbach	20 Cassidy Dr. Durango, CO 81303	Drip	Rocky Ford	7	71.4	0.0	0.0	0.0	64.7	0.0	11	6	7	7	-20.9
101	C.L. Reese	28948 Co Rd 30.5, Holly, CO 81047	Sprinkler	Lamar	545	460.3	229.4	183.4	456.7	0.0	5.5	18	14	17	16	-90.5
111	Robin Jacquart	18938 Co Rd Z, Rocky Ford, CO 81067	Sprinkler	High Line	32.2	338.4	0.0	199.0	122.8	0.0	0.4	6	4	7	7	34.6
112	Caldwell Farms (Dennis, Beverly & Wayne)	25026 Co Rd 19, Rocky Ford, CO 81067	Sprinkler	High Line	16	144.0	0.0	28.0	114.7	0.0	0.0	6	4	7	7	33.7
118	Tri-State Generation and Transmission Association, Inc. c/o Dan Burke	P.O. Box 33695, Denver, CO 80233	Sprinkler	Amity	450.95	453.2	0.0	138.1	234.9	0.0	4.1	17	13	18	18	-23.3
120	Tri-State Generation and Transmission Association, Inc. c/o Dan Burke	P.O. Box 33695, Denver, CO 80233	Sprinkler	Amity	320	542.1	0.0	251.2	238.7	0.0	1.2	17	13	18	18	16.2
127	Ridley Farms and Ranches, LLP	26960 Hwy 101, Las Animas, CO 81054	Sprinkler	Las Animas Consolidated	10.064	136.3	0.0	32.7	121.0	0.0	1.6	13	9	10	10	17.0
128	Kelly & Jodi Bond	1820 Avondale Blvd, Avondale, CO 81022	Sprinkler	Bessemer	80	74.5	0.0	7.0	65.5	0.0	0.0	1	1	1	1	8.5
129	Lakeshore Farms, LLC	1803 Woodfield Dr., Suite B, Savory, IL 61874	Sprinkler	Amity	75	113.9	0.0	32.8	85.2	0.0	0.3	17	13	18	13	8.8
130	Lakeshore Farms, LLC	1803 Woodfield Dr., Suite B, Savory, IL 61874	Sprinkler	Ft Bent	218	192.4	0.0	0.0	102.5	0.0	1.3	15	12	15	13	12.3
131	Lakeshore Farms, LLC	1803 Woodfield Dr., Suite B, Savory, IL 61874	Sprinkler	Ft Bent	422	323.0	0.0	0.0	217.4	0.0	2.5	15	12	15	13	24.2
137	HayNow Farms	1490 Judson Dr., Boulder, CO 80305	Sprinkler	Holbrook	113	80.2	0.0	16.6	70.1	0.0	1.3	12	6	8	7	-2.9
139	David Mayhoffer	25510 Hwy 10, La Junta, CO 81050	Sprinkler	Catlin	775	748.0	0.0	50.0	694.9	0.0	5.5	9	6	8	7	-105.7
140	Carol Flint	34500 Rd 13, Lamar, CO 81052	Sprinkler	Amity	66.6	148.9	0.0	0.0	125.2	0.0	0.4	17	13	18	15	10.0
141	Diamond A Farms, Inc.	PO Box 551, Rocky Ford CO 81067	Sprinkler	Catlin	150	150.9	0.0	13.4	113.9	0.0	0.0	9	6	8	7	-74.4
142	Caldwell Bros	25026 Co Rd 19, Rocky Ford, CO 81067	Sprinkler	High Line	11	155.5	0.0	37.4	118.1	0.0	0.0	6	4	7	7	41.2
143	Jared and Mathew Gardner	26825 Co Rd DD, Rocky Ford, CO 81067	Sprinkler	Catlin	166	162.4	0.0	42.1	120.3	0.0	0.0	9	6	8	7	-18.4
144	Jared Gardner	26825 Co Rd DD, Rocky Ford, CO 81067	Sprinkler	Catlin	80	95.3	0.0	16.9	80.0	0.0	0.0	9	6	8	7	-2.2

2018-2019 Non-Fort Lyon Rule 10 Plan
Appendix A continued - Non-Fort Lyon Farm Information

GIS_ID	Owner Name	Address	Imprvmnt.	Ditch	Shares	PreFlood (ac.)	PreSprink (ac.)	PostFlood (ac.)	PostSprink (ac.)	PostDrip (ac.)	Pond (ac.)	User	Upper Reach	Lower Reach	TW Reach	Deficit (+) or Accretion (-) (ac-ft)
145	Jared and Mathew Gardner	26825 Co Rd DD, Rocky Ford, CO 81067	Sprinkler	Catlin	53.5	60.0	0.0	0.0	62.6	0.0	0.0	9	6	8	7	-0.5
147	Paul & Susan Casper	504 Kimble, Swink, CO 81077	Sprinkler	Holbrook	69.2	72.2	0.0	19.3	52.8	0.0	1.2	12	6	8	7	-13.8
148	Bret Stowers	11258 Rd JJ, Manzanola, CO 81058	Sprinkler	High Line	8	77.9	0.0	44.2	33.7	0.0	0.0	6	4	7	6	11.0
149	Kenneth & Arlene Schweizer	30102 Co Rd 15, Rocky Ford, CO 81067	Sprinkler	Catlin	136.4	119.6	0.0	58.7	59.5	0.0	0.0	9	6	8	6	-122.2
150	Kenneth, Arlene & John Schweizer	30102 Co Rd 15, Rocky Ford, CO 81067	Sprinkler	Catlin	133	137.7	0.0	38.1	104.1	0.0	0.0	9	6	8	6	-3.9
152	Heath & Rhett Proctor	16861 Hwy 202, Rocky Ford, CO 81067	Sprinkler	High Line	7.5	62.0	0.0	0.0	76.7	0.0	0.0	6	4	7	6	27.8
154	Scott, Kyle & Caitlin Hansen	33859 Co Rd 30 La Junta, CO 81050	Sprinkler	Holbrook	145	137.0	0.0	27.1	107.8	0.0	1.6	12	6	8	7	-4.3
161	Haynow Farms	1490 Judson Dr. Boulder, CO 80305	Sprinkler	Holbrook	353.8	265.1	0.0	93.3	181.4	0.0	2.3	12	6	8	7	13.2
162	Caldwell Farms	25026 Co Rd 19 Rocky Ford, CO 81067	Sprinkler	High Line	11.8	174.4	0.0	60.8	118.2	0.0	0.0	6	4	7	7	32.5
170	Dustin and Staci DeWitt	7395 Hwy 50, Lamar, CO 81052	Sprinkler	Amity	96	140.0	0.0	50.0	90.0	0.0	1.7	17	14	17	14	-27.4
171	Ordway Feedyard	19424 Hwy 96, Ordway, CO 81063	Sprinkler	Baldwin Stubbs	550	541.0	0.0	122.9	433.6	0.0	0.0	14	6	6	6	26.5
178	John & Connie Deforest	25243 Co Rd KK Bristol, CO 81047	Sprinkler	Amity	169	155.3	0.0	42.2	111.8	0.0	3.8	17	13	18	17	-66.0
179	Scott, Kyle & Caitlin Hansen	33859 Co Rd 30 La Junta, CO 81050	Sprinkler	Holbrook	127	151.4	0.0	31.4	120.0	0.0	2	12	6	8	7	-18.1
180	David Mayhoffer	25510 Hwy 10, La Junta, CO 81050	Sprinkler	Catlin	125	131.0	0.0	5.3	125.7	0.0	1	9	6	8	7	-15.3
182	Lusk Farms, LLC	28183 Co Rd 24.5 Rocky Ford, CO 81067	Sprinkler	Holbrook	80	183.1	0.0	125.6	57.5	0.0	1.0	12	6	8	7	-16.6
183	Caldwell Bros	25026 Co Rd 19, Rocky Ford, CO 81067	Sprinkler	High Line	11	206.6	0.0	85.6	121.0	0.0	0.0	6	4	7	7	27.2
184	Gardner Farms	26825 Co Rd DD, Rocky Ford, CO 81067	Sprinkler	Catlin	84	194.8	0.0	50.6	141.7	0.0	0.0	9	6	8	7	-28.9
186	Diamond A Farms, Inc. & Fred Estrada	PO Box 551, Rocky Ford Co 81067	Lateral Improvement	Catlin	579	542.0	0.0	542.0	0.0	0.0	0.0	9	6	8	7	-25.0
187	Frank Vazquez	P.O. Box 235 Holly, CO 81047	Sprinkler	Buffalo	88	88.0	0.0	27.0	52.0	0.0	1.0	22	16	18	17	-25.0
188	Lawrence Schenck	96 Hughes Ct., Holly, CO 81047	Sprinkler	Buffalo	147.5	168.4	0.0	19.9	131.0	0.0	1.0	22	16	18	17	-51.5
189	Dave Kaess	22661 Co Rd 24 La Junta, CO 81050	Sprinkler	Catlin	110	126.8	0.0	7.2	118.2	0.0	1.0	9	6	8	7	-12.6
190	Alfredo Estrada	1720 Elm Ave. Rocky Ford, CO 81067	Sprinkler	Catlin	110	144.2	0.0	121.3	22.9	0.0	0.0	9	6	8	7	1.0
197	Lusk Farms, LLC	28183 Co Rd 24.5 Rocky Ford, CO 81067	Drip	Holbrook	120	216.0	0.0	56.0	0.0	160.0	1.5	12	6	8	7	2.5
199	Nicholas Behm	10145 Co Rd JJ.5 Manzanola, CO 81058	Sprinkler	High Line	7	103.3	0.0	0.0	111.1	0.0	0.0	6	4	7	6	29.2
201	Marvin Schlegel	24775 Co Rd 24 La Junta, CO 81050	Sprinkler	Holbrook	131.4	73.1	0.0	12.3	58.8	0.0	1.7	12	6	8	7	-8.6

2018-2019 Non-Fort Lyon Rule 10 Plan
Appendix A continued - Non-Fort Lyon Farm Information

GIS_ID	Owner Name	Address	Imprvmnt.	Ditch	Shares	PreFlood (ac.)	PreSprink (ac.)	PostFlood (ac.)	PostSprink (ac.)	PostDrip (ac.)	Pond (ac.)	User	Upper Reach	Lower Reach	TW Reach	Deficit (+) or Accretion (-) (ac-ft)
203	Jared and Mathew Gardner	26825 Co Rd DD, Rocky Ford, CO 81067	Sprinkler	Catlin	850	1083.4	0.0	284.5	790.7	0.0	0.0	9	6	8	7	-29.1
204	Larry Gardner	13251 Co Rd EE, Las Animas, CO 81054	Sprinkler	Las Animas Consolidated	65	136.7	0.0	14.1	120.7	0.0	1.3	13	9	10	10	-90.6
205	Danny Vaughan	P.O. Box 8, Cheraw, CO 81030	Sprinkler	Holbrook	156.4	152.5	0.0	25.2	125.7	0.0	1.7	12	6	8	7	-2.1
206	Hans Fedde	30306 Co Rd 4, Fowler, CO 81039	Sprinkler	High Line	10	153.9	0.0	34.3	119.6	0.0	0.0	6	4	7	5	32.6
212	Thomas C. & Karen S. Henderson	29501 Co Rd 3, Lamar, CO 81052	Sprinkler	Ft Bent	251	169.6	0.0	72.5	100.6	0.0	3.0	15	12	15	13	-46.2
213	Nick Knapp	29676 Highway 71 Rocky Ford, CO 81067	Sprinkler	Catlin	173	65.5	0.0	18.3	47.2	0.0	0.0	9	6	8	6	-18.6
217	Hirakata Farms	22161 Co Rd CC, Rocky Ford, CO 81067	Drip	Catlin	130	119.8	0.0	59.1	0.0	60.7	0.0	9	6	8	7	-9.8
218	Hirakata Farms	22161 Co Rd CC, Rocky Ford, CO 81067	Drip	Catlin	86.1	106.5	0.0	84.2	0.0	22.3	0.0	9	6	8	7	-0.9
219	Hirakata Farms	22161 Co Rd CC, Rocky Ford, CO 81067	Drip	Catlin	34	31.7	0.0	4.3	0.0	27.4	0.0	9	6	8	7	-4.4
223	Jim Hanratty	38537 South Rd, Pueblo, CO 81006	Sprinkler	Bessemer	34	211.0	0.0	0.0	165.5	0.0	0.3	1	1	3	2	7.2
225	Hirakata Farms	22161 Co Rd CC, Rocky Ford, CO 81067	Drip	Catlin	30	29.4	0.0	1.1	0.0	28.1	0.0	9	6	8	7	-4.8
226	Hirakata Farms	22161 Co Rd CC, Rocky Ford, CO 81067	Drip	Catlin	82.1	67.5	0.0	40.8	0.0	26.6	0.0	9	6	8	7	-5.1
227	CBDRx	1003 Constitution Rd, Pueblo, CO 81001	Drip	Blunt	N/A	64.8	0.0	0.0	0.0	64.8	0.0	2	1	1	1	3.6
228	Miles Bond	28229 C.R. 18, Rocky Ford, CO 81067	Sprinkler	Highline	11	188.3	0.0	48.6	173.3	0.0	1.3	6	4	7	7	-2.5
229	Darnell Johnson	34584 Co Rd 5.25, Fowler, CO 81039	Sprinkler	Oxford	17.79	60.1	0.0	13.7	46.4	0.0	0.3	7	5	5	5	-9.9
230	Hans Fedde	30306 Co Rd 4, Fowler, CO 81039	Sprinkler	Highline	4	56.1	0.0	15.3	40.8	0.0	0.0	6	4	7	5	12.1
231	Lesley Mills	16831 Hwy 50, Rocky Ford, CO 81067	Drip	Catlin	295	281.9	0.0	230.2	0.0	50.9	0.0	9	6	8	7	-9.8
232	Lesley Mills	16831 Hwy 50, Rocky Ford,	Drip	Catlin	255.5	223.1	0.0	198.1	0.0	25.0	0.0	9	6	8	7	-4.3
237	Diamond A Farms, Inc.	PO Box 551, Rocky Ford CO	Drip	Catlin	96.5	96.5	0.0	0.0	0.0	96.5	0.0	9	6	8	7	-14.3
245	Arkansas Valley Research Center	27901 Co Rd 21, Rocky Ford	Sprinkler	Rocky Ford	13.5	90.4	0.0	64.5	25.9	0.0	0.0	11	6	7	7	-4.8
246	Dave Kaess	22661 Co Rd 24 La Junta, CO	Sprinkler	Otero	120	134.5	0.0	27.3	100.2	0.0	1.2	8	6	8	7	-8.2
251	Knapp Farms	29742 Highway 71 Rocky Fe	Sprinkler	Highline	10	109.1	0.0	22.4	86.5	0.0	1.6	6	4	7	7	-10.5
252	DiSanti Farms	29114 South Road, Pueblo,	Drip	Bessemer	312.53	285.7	0.0	275.7	0.0	10.0	0.0	1	1	3	1	-0.4
253	Apishapa Canyon Ranch LP	17001 Co Rd 1440, Wolfport	Sprinkler	Catlin	20	41.8	0.0	8.9	30.2	0.0	0.0	9	6	8	7	11.1