

RECLAMATION

Managing Water in the West

Annual Operating Plans

Fryingpan-Arkansas Project

Water Year 2014

Summary of Actual Operations

Water Year 2015

Annual Operating Plans



U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region

**ANNUAL OPERATING PLAN
FRYINGPAN-ARKANSAS PROJECT WATER YEAR 2014 OPERATIONS**

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PROJECT HIGHLIGHTS

August 16, 1962	Project authorized under Public Law 87-590
August 1964	Construction began on Ruedi Dam
November 2, 1965	Started excavating Charles H. Boustead Tunnel
December 1965	Construction began on Sugar Loaf Dam
April 15, 1968	Breached old Sugar Loaf Dam
May 1968	Began storing water in Ruedi Reservoir
June 15, 1969	Charles H. Boustead Tunnel "holed through"
July 1970	Construction began on Pueblo Dam - first contract
May 16, 1972	Initial Project diversion (Chapman, South Fork, and Fryingpan)
June 7, 1972	Initial diversion from Sawyer Creek
July 1972	Construction began on Pueblo Dam - second contract
July 1972	First sale of Project transmountain water
January 9, 1974	Began storing water in Pueblo Reservoir
May 6, 1974	Initial diversion from Lily Pad
May 4, 1976	Initial diversion from Ivanhoe Creek
May 1977	First replacement water released from Ruedi Reservoir
June 1977	First sale of water from Ruedi Reservoir
November 22, 1977	Adopted the recommended bypass flow of 15 cfs or natural inflow, whichever is less on Lake Creek below Twin Lakes Dam
June 1, 1979	Initial diversion from Middle Cunningham Creek
June 4, 1979	Initial diversion from Mormon Creek
June 14, 1979	Initial diversion from North Cunningham Creek

May 8, 1980	Initial diversion from Hunter, Midway and No Name Creek Diversions
June 4, 1980	Initial diversion from North Fork and South Cunningham
December 8, 1980	Federal Register notification of availability of water from Ruedi Reservoir
April 28, 1981	Initial diversion from Carter
May 6, 1981	Initial diversion from Granite Creek
June 1, 1981	Assume operation at Twin Lakes Dam
June 23, 1981	Mt. Elbert Forebay filled
September 29, 1981	Mt. Elbert Power Plant dedicated
October 1, 1981	Mt. Elbert Unit #1 was made commercially available to WAPA for their use
May 5, 1982	Initial diversion from Halfmoon Creek
July 29, 1982	Turquoise Lake filled for first time
September 14, 1983	Initial diversion from south outlet works at Pueblo Dam for Pueblo West
August 9, 1984	Mt. Elbert Unit #2 was made commercially available to WAPA for their use
May 24, 1985	Began storing water under Arkansas River Decree
July 1, 1985	Initial diversion through Fountain Valley Conduit
August 1985	Ruedi Hydroplant began operations
November 27, 1985	Twin Lakes pipeline began operations
May 7, 1986	Sugar Loaf Hydroplant began operations
June 1986	Imports restricted due to high east slope storage
November 10, 1987	Winter water storage decree approved and signed

November 17, 1989	Completed the removal of dikes and constructed the bypass channel around the old outlet works in the old Twin Lakes dam July 1990 Initial release from Twin Lakes Reservoir for recreational benefits on the Arkansas River
August 14, 1990	Initial release from Ruedi Reservoir for endangered fish (conservation flows pursuant to the biological opinion) in the Colorado River's "15-mile reach" for the U.S. Fish & Wildlife Service from water leased by the Colorado Water Conservation Board
September 28, 1990	Dedication of Pueblo Fish Hatchery and the completion of construction on the Fryingpan-Arkansas Project ceremony
November 1990	Final winter storage decree signed by court
July 21, 1992	Dedication of Leadville Mine Drainage Tunnel Water Treatment Plant
September 29, 1994	Transfer of Phase II of the Pueblo Fish Hatchery at Pueblo Reservoir to Colorado Division of Wildlife
May 15, 1995	Final transfer of recreational facilities at Pueblo to the Department of Parks and Outdoor Recreation
July 7, 1995	Began storing water under Arkansas River Decree
July 18, 1995	Began restricting imports due to high east slope storage
July 1997	Reservoir level at Pueblo Reservoir restricted after a routine risk assessment of Pueblo Dam was completed and raised concern about the foundation below the spillway section of the dam
May 1999	Reservoir restriction lifted
July 2000	Risk Analysis Study for Pueblo Dam completed
July 11, 2000	Long-term contract between United States government and the Pueblo Board of Water Works executed.

September 11, 2001	As a result of the terrorist attacks on September 11, 2001, all Fryingpan-Arkansas Project facilities were closed to the public. The facilities remained closed until security measures to safeguard the federal investment were implemented. Reclamation has maintained a heightened level of security at Fry-Ark facilities since that time.
July 23, 2002	Initial release of water through Pueblo Board of Water Works south outlet works joint-use manifold
September 12, 2007	Long-Term Contract between the United States Government and the city of Aurora executed
May 2010	The upgrade to the control and monitoring system for the Fryingpan-Arkansas collection system was completed.
September 2010	Repairs were made on the cracked rotor on Unit 1 at the Mt. Elbert Power Plant and the unit was put back into service.
May 2011	Reclamation issued Colorado Springs Utilities a special work permit allowing construction to begin on the Southern Delivery System (SDS).
July 2012	Tested modified River Outlet at the North Outlet Works at Pueblo Dam
September 2012	Fiberoptic cables to control of west slope systems from the east slope installed
August 9, 2013	Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract Final Environmental Impact Statement issued
February 27, 2014	Reclamation issued Record of Decision for Arkansas Valley Conduit and Long Term Excess Capacity Master Contracts

I. GENERAL

This is the 46th Annual Operating Plan (AOP) for the Fryingpan-Arkansas Project. A numbering error in the 1994 AOP was carried forward until last year so there is no report labeled as the 45th although there is an unbroken line of AOPs since 1969. The project, completed in 1990, imports spring snowmelt runoff from Colorado's west slope to the semi-arid Arkansas River Basin on Colorado's east slope. The project consists of federally owned dams, reservoirs, stream diversion structures, conduits, tunnels, pumping plants, a pumped-storage power plant, electric transmission lines, substations, and recreation facilities. These features are located in the Fryingpan River and Hunter Creek watersheds of the upper Colorado River Basin, and in the Arkansas River Basin in central and southeastern Colorado. The project provides water for irrigation, municipal and industrial use, hydroelectric power generation, recreation, and wildlife habitat. The project also provides for flood control.

The project was authorized under Public Law 87-590 on August 16, 1962. This law provides that the project will be operated under the operating principles adopted by the state of Colorado on April 30, 1959, as amended on December 30, 1959, and on December 9, 1960. These operating principles were published as House Document 130 (87th Congress, 1st Session), and are included in Appendix E.

This AOP is a summary of the actual project operation in water year (WY) 2014 from October 1, 2013 - September 30, 2014.

II. PROJECT FEATURES IN OPERATION DURING WY2014

Ruedi Dam and Reservoir are located on the Fryingpan River, a tributary of the Roaring Fork River, on Colorado's west slope about 13 miles east of Basalt, Colorado. Ruedi Reservoir has a total capacity of 102,373 acre-feet (AF) at a water surface elevation of 7,766.0 feet. The reservoir is operated on an annual cycle. Steady winter releases draft the reservoir such that it is filled with the spring runoff, while releases to the Fryingpan River are maintained below the safe channel capacity. The reservoir provides replacement water for out-of-priority depletions to the Colorado River by the project as well as water for west slope irrigation, municipal, and industrial uses on a contractual basis. The reservoir is also operated to provide for recreation and wildlife habitat.

The west slope collection system, located upstream of Ruedi Reservoir in the upper Fryingpan River and Hunter Creek watersheds, is a series of 16 stream diversion structures and eight tunnels. The system collects spring snowmelt runoff for diversion, by gravity, to the inlet of the Charles H. Boustead Tunnel. The Boustead Tunnel conveys water collected by the west slope collection system under the continental divide and into Turquoise Lake on the east slope. The tunnel is 5 miles long and has a water conveyance capacity of 945 cubic feet per second (cfs). Sugarloaf Dam and Turquoise Lake are located on Lake Fork Creek, a tributary of the Arkansas River, about 5 miles west of Leadville, Colorado. The lake has a total capacity of 129,398 AF at a water surface elevation of 9,869.4 feet. The lake is operated to provide regulation of both project and non-project water imported from the west slope. Turquoise Lake is operated on an annual cycle. The lake is drafted through the Mt. Elbert Conduit during the winter to provide adequate space for the spring imports of west slope water. Most of the native inflow from Lake Fork Creek is impounded in the lake and returned to the Arkansas River via the Mt. Elbert Conduit, the Mt. Elbert Power Plant, and Twin Lakes. The lake is also operated to provide for recreation and wildlife habitat.

The Mt. Elbert Conduit conveys project, non-project, and native Lake Fork Creek water from Turquoise Lake to Twin Lakes. The conduit is 10.7 miles long and has a water conveyance capacity of 370 cfs. Native water from Halfmoon Creek is also added to the conduit and returned to the Arkansas River from Twin Lakes Dam. The Sugarloaf Powerplant, a privately operated electrical generation station, runs when water is being conveyed from Sugarloaf Dam to the Mt. Elbert Conduit. All conduit flow which reaches the Mt. Elbert Forebay is used to generate electricity at the Mt. Elbert Power Plant as it is delivered to Twin Lakes.

The Mt. Elbert Power Plant is a pumped-storage facility located on the shore of Twin Lakes. It has two 100-megawatt turbine generators, which can be reversed and used as 340,000 horsepower pumps. In addition to being used to generate energy with the Mt. Elbert Conduit flow, the plant is used to follow daily peak power loads. This load following is

accomplished by pumping water to the Mt. Elbert Forebay, an 11,143 AF regulating pool at the terminus of the Mt. Elbert Conduit, from Twin Lakes during off-peak load hours using surplus or low cost energy. That water is then returned to Twin Lakes through the turbines during peak load hours, along with the Mt. Elbert Conduit flow. The energy generated at the plant is transmitted and marketed by the Western Area Power Administration, with the revenues applied to the repayment of the project.

Twin Lakes Dam and Twin Lakes are located on Lake Creek, a tributary of the Arkansas River, about 13 miles south of Leadville, Colorado. Twin Lakes has a surveyed capacity of 140,855 AF at a maximum water surface elevation of 9,200 feet. The morning glory spillway is slightly tilted which reduces the active storage space by 498 AF. During construction, the dead pool (the elevation below which water cannot physically be released) was determined to be 9,157.5 feet msl (54,955 AF). In the 1980's, a 24" bypass line used during construction was grouted. At that time, the dead pool was increased to 9,162.8 feet msl (63,324 AF). The Standard Operating Procedures are being updated with the new dead pool elevation. The inactive pool has remained at the same elevation of 9,168.7 feet msl (72,939 AF) in support of power generation so there has not been a change in operations.

The reservoir is operated to regulate both project and non-project water imported from the west slope. The project water stored in the reservoir is released to Lake Creek for storage in Pueblo Reservoir during the winter months, in anticipation of spring imports from the west slope. Native inflows into Turquoise Lake, native flows diverted from Halfmoon Creek, and native inflows into Twin Lakes, are all released to Lake Creek from the Twin Lakes Dam. The cities of Colorado Springs and Aurora, CO take direct delivery of water from the reservoir through their Otero Pipeline. The operation of Twin Lakes also provides for recreation and wildlife habitat.

Pueblo Dam and Reservoir are located on the Arkansas River 6 miles west of the city of Pueblo, Colorado. The reservoir is the terminal storage facility for the Fryingpan-Arkansas Project and has a total storage capacity of 349,940 AF at a water surface elevation of 4,898.7 feet. The upper 26,991 AF of storage space are reserved exclusively for flood control at all times, while an additional 66,000 AF of space are reserved for flood control seasonally from April 15 - November 1. Pueblo Reservoir is also operated to provide for recreation, wildlife habitat, and flood control.

Non-project water may be stored in the reservoir under contract with Reclamation. Native inflow can be stored when the project storage right is in priority or under the Winter Water Storage Program (WWSP). Under the WWSP, irrigators are permitted to store native Arkansas River water in Pueblo Reservoir during the winter months for an additional supply of irrigation water, on the condition that the water is used before May 1 of the next WY.

The majority of project water deliveries are made from the reservoir. The Fountain Valley Authority, the Pueblo West Metropolitan District, and the Pueblo Board of Water Works take

direct delivery of municipal water through the south outlet works and joint-use manifold. A direct irrigation delivery is made to the Bessemer Ditch. Releases from the fish hatchery outlet at Pueblo Dam support the Pueblo Fish Hatchery. Other project deliveries are made as releases to the Arkansas River for diversion downstream.

In 2013, the river outlet works on the north side of Pueblo Dam was replaced to accommodate the North Outlet Works for the Southern Delivery System (SDS) Project. Releases to the Arkansas River from Pueblo Dam will be made through the fixed cone valve facility operated in cooperation between Colorado Springs Utilities and Reclamation, to provide releases from Pueblo Dam as directed by the Colorado Division of Water Resources – Division 2. The SDS Project is currently building the Juniper Pump Station and connecting pipeline to the North Outlet Works. The SDS Project is anticipated to be completed in 2016.

III. HYDROLOGIC CONDITIONS AND WEATHER EVENTS IN WY 2014

Precipitation over the Fryingpan watershed above Ruedi Reservoir was generally above average for WY2014. The year started out at 94 percent of average in October 2014 and remained very close to average until the end of January 2015. In late January and early February precipitation increase rapidly and remained above average for the rest of February. By the end of February total basin precipitation had increased to 116 percent of average. March precipitation slowed and the basin average dropped to 113 percent by the end of the month. Precipitation leveled off at 108 percent by the end of April and remained the same in May. From May until the end of the year precipitation remained above average.

Snow pack in the basin followed precipitation and remained above average for most of the year. Snow accumulation at the group of SNOTEL sites used to forecast inflow to Ruedi (Fremont Pass, Ivanhoe, Nast Lake, and Kiln) was above average for October through December. From December to mid-January total snowpack dipped slightly below average for about a 30 day span. The lowest point was in early January when the snowpack was at 84 percent of average. In February snow accumulation picked up significantly. By the end of the month the basin reached 123 percent of average. The basin snowpack remained above average for the rest of the accumulation season. All the SNOTEL sites, on average, melted out about 14 day before the normal date. The combined snow water equivalents (SWE) for these four sites compared to average is shown in Figure 1.

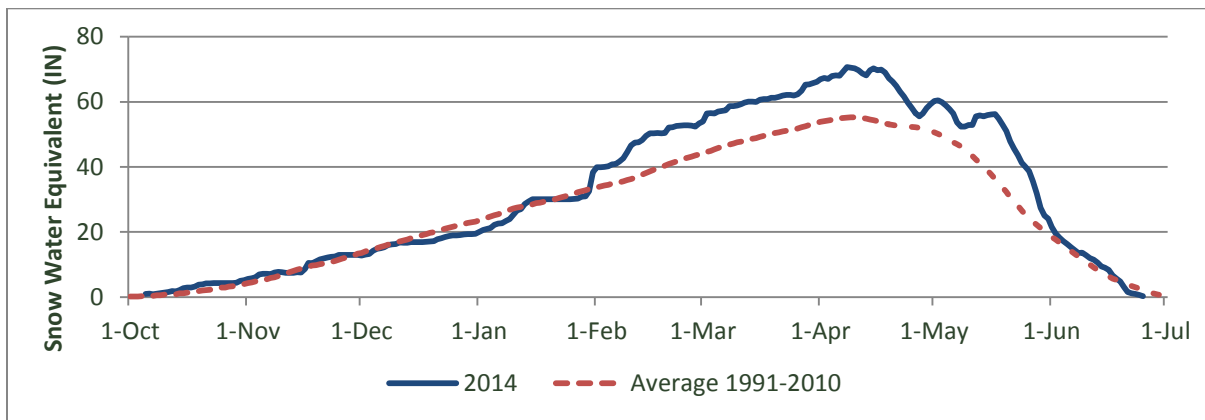


Figure 1: Combined SWE of Fremont Pass, Independence Pass, Ivanhoe Lake and Nast SNOTEL sites.

Average daily temperatures at the SNOTEL sites in and around the upper Fryingpan River basin were mostly above average for the year. In the late fall and early winter months temperatures ranged from 97 percent to 102 percent of average. After January 1, 2014, temperature increased significantly to a peak of 122 percent of average in February. In the spring and summer months

temperatures decreased to near normal levels until September when they increased slightly to 107 percent of average.

The snowpack accumulations were average from October through the end of January. Several large storms increased the SWE dramatically between the end of January and the middle of February. Accumulations continued into early April, peaking at 130 percent of average. Melting began in early May but two storms in May brought the SWE totals to more than 140 percent of average.

Inflows to Ruedi Reservoir and the Boustead collection system were generally above average in WY2014. While imports through the Boustead Tunnel (Figure 2) began with the opening of the collection system on April 23, 2014 the flows fluctuated with freezes and thaws on the west slope until May 16, 2014. The cumulative inflows to Ruedi were above average for the year. The total cumulative inflow to Ruedi Reservoir over the April - July period was 93,693 AF and was the 12th highest inflow volume over the 30 year average period.

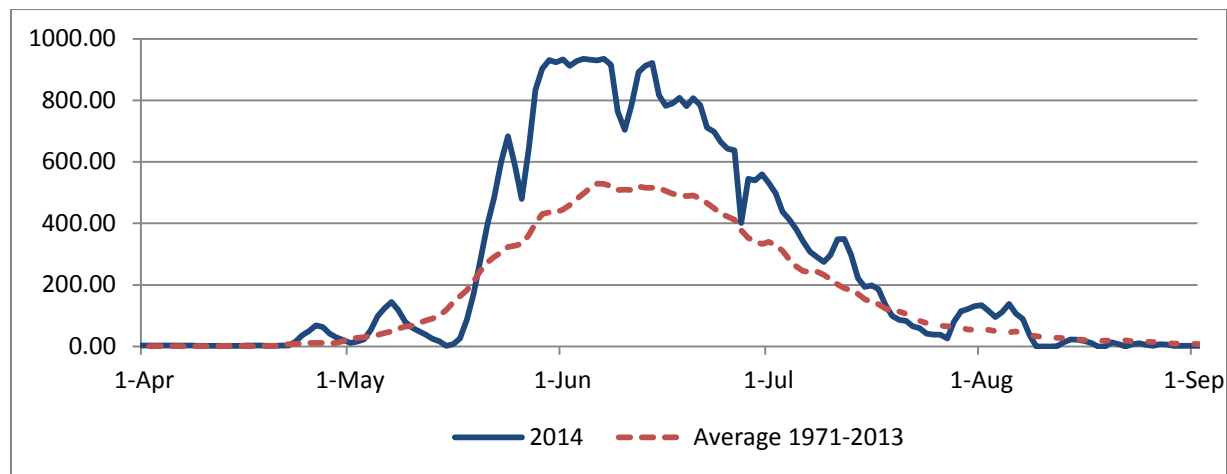


Figure 2: Boustead Tunnel Imports

The high snowpack contributed to high native flows. There are four high water advisory locations designated for commercial rafters on the upper Arkansas River. Advisories were issued at each of the locations at least once between April - July. Although Reclamation was releasing project water during the advisories, the advisories would have been issued from native flows alone. Because of the high flows, no Project water was released in support of the Voluntary Flow Management Program.

The summer was cooler and wetter than average. Monsoons began July 10, 2104 and continued through the beginning of September 2014.

A week of heavy storms produced runoff below Pueblo Dam that pushed the flow at the Arkansas River at Avondale (ARKAVOCO) gage over the flood flow of 6,000 cfs on July 17, 2014.

IV. SUMMARY OF OPERATIONS DURING WY 2014

A. Ruedi Reservoir

Ruedi Reservoir started out WY2014 with a storage content of 86,124 AF, which is 98 percent of average. In October the release from Ruedi was decreased to the winter flow of 90 cfs and held at this rate until the January 2014. These releases were made through the city of Aspen's hydroelectric powerplant.

On January 15, 2014 a water order was given to increase Ruedi releases from 90 cfs to 115 cfs. This was the result of above average snowpack and reservoir storage. In February the year's first forecast of inflow to Ruedi was computed. The forecast indicated we could see above average inflow to the reservoir, 107 percent of average, in April - July. Reservoir storage and snowpack were still above average so a water order was given on February 6, 2014 to increase the releases to 143 cfs and then to 168 cfs on February 10, 2014.

In March the forecast still was predicting above average inflow to Ruedi Reservoir. It increased to 119 percent of average. Reservoir storage and snowpack were still above average so the release was increased to 218 cfs on March 14, 2014 and then to 300 cfs on March 21, 2014.

In April the reservoir was drafted down to the year's lowest storage content of 63,332 AF. Snow was still accumulating at the SNOTEL sites and runoff was just starting to increase. The most probable forecast of inflow for April - July called for 102,000 AF or 119 percent of average. This forecast projected that Ruedi would fill under the most probable case and spill under the max reasonable case. No further release changes were made during the month of April.

Runoff continued to increase in early May and Ruedi slowly started refilling. The releases from Ruedi were increased several times throughout the month, and by the end of the month, the outflow was up to 575 cfs. Snow accumulation peaked in April and by early May the snowpack started melting out. The melt rate followed the average rate with the exception of a few storms that added additional snow. The most probable forecast of inflow in May called for 81,000 AF of inflow. This forecast was similar to the April forecast and projected that Ruedi would physically fill.

Ruedi Reservoir is one of the participating reservoirs in the Coordinated Reservoir Operations (CROS) effort of the Upper Colorado River Endangered Fish Recovery Program. Reservoir operations are directed at augmenting the peak flows in the 15-Mile reach of the Colorado River in the spring and early summer as the natural runoff is increasing. Ruedi Reservoir did not participate in CROS operations this year because the river flows on the Lower Colorado River were projected to exceed flood stage.

Ruedi reservoir reached a maximum content for the year of 101,726 AF on July 1, 2014. This storage content was 105 percent of the 30 year average for that day. Releases from the reservoir reached a peak of 677 cfs in early June and averaged 244 cfs from May - September. The senior Grand Valley Irrigators call did not come on in WY2014 and Ruedi Reservoir was in priority for the entire year. As a result, Ruedi was able to store all inflow to fill and was not required to make contract or replacement releases to the Colorado River.

On August 6, 2014 storage water was released to support fish recovery efforts in the 15-Mile reach of the Colorado River. These releases are designed to enhance habitat for endangered fish in the Colorado River. A total of 15,412.5 AF was released between August 6 -October 15 in WY2014. This total includes 5,000 AF from the firm endangered fish pool, 5,412.5 AF from the mitigation water pool, and 5,000 AF from the 4 of 5 fish pool.

Ruedi ended the water year at a surface elevation of 7,750.77 feet and 87,900 AF in storage, average for this date. The total inflow volume for the April through July period was 93,692 AF which is 102 percent of average and is the 19th lowest year since 1980. Table 1 shows Ruedi Reservoir operations for WY2014. Tables 2 and 3 show operations made in support of fisheries. Exhibits 1, 2 and 3 show the precipitation, evaporation and operations for Ruedi Reservoir.

B. West Slope Collection System and Project Diversions

The most probable forecasts for the first of each month are shown in parentheses following the name of the month: February (63,800 AF), March (73,100 AF), April (73,900 AF), and May (64,040 AF). Storms after the May forecast increased the snowpack considerably. A total of 80,807 AF of water was diverted through the Boustead Tunnel. 80,316 AF of that water was stored during WY2014, which is 149 percent of average for the period from WY1972 - WY2014 and 125 percent of the May 2014 forecast.

The import of project water through the Boustead Tunnel began on April 23, 2014. The maximum mean daily import through Boustead Tunnel was 935.36 cfs on June 7, 2014. A portion of the diversion system was shut down in late July and the rest during the week of August 25-29, 2014. Boustead Tunnel seepage was recorded whenever the Fry-Ark Project water rights were in priority. There was no Busk-Ivanhoe water conveyed through the Boustead Tunnel. The daily discharge record for the diversion structures is included as Appendix D. An aggregated discharge record is shown on Table 4. The 43 years of accumulated imports total 2,221,500 AF, for an average of 51,700 AF per year shown on Table 5. A plot of the Boustead Tunnel imports during WY2014 is shown on Figure 2 and Exhibit 5.

Ruedi Reservoir was forecast to fill this year. In accordance with stipulations to 02CW324 and 02CW354 and the November 30, 2004 agreement between the Southeastern Colorado Water Conservancy District, Colorado River Water Conservation District and the Twin Lakes Reservoir Canal Company, imports through the Boustead Tunnel were constrained to a maximum of 940 cfs.

C. Twin Lakes Reservoir and Canal Company/Fryingpan-Arkansas Project Exchange

The Bureau of Reclamation is obligated to maintain minimum stream flows in the Roaring Fork River by the authorizing legislation of the project. This is accomplished through an exchange of water with the Twin Lakes Reservoir and Canal Company. On October 1, 2013, the company began bypassing water into the Roaring Fork River on the west slope in exchange for project water stored in Twin Lakes on the east slope.

The total amount of the exchange was 2,990 AF with a net credit to Twin Lakes Canal Company of 2,963 AF. The operating criteria and the monthly summary of the exchange are shown in Appendix C.

D. Turquoise Lake

On September 30, 2013, there were 103,131.05 AF of water (elevation of 9,854.23 feet) stored in Turquoise Lake, 93 percent of average. Releases made down Lake Fork Creek and to Twin Lakes through the Mt. Elbert Conduit drafted Turquoise Lake to 38,143.68 AF (elevation 9,808.69 feet), the lowest storage of the water year, by May 18, 2014. The high point for storage was 118,821.69 AF of water (elevation 9,863.41 feet) on July 17, 2014. At the end of the water year on September 30, 2014 there was 112,320 AF, an elevation 9,859.65 feet, which is 101 percent of average. Exhibits 8 and 9 show the precipitation and pan evaporation at Turquoise Lake. Table 6 and Exhibit 10 depict the monthly operation of Turquoise Lake during WY2014.

Homestake Reservoir completed renovations in 2014. Homestake Tunnel was open for short periods during construction and testing early in the water year and then for imports from March 21-June 27, 2014. At that time, Homestake Reservoir repairs were advanced enough that Homestake Reservoir could begin storing water and transmissions to Turquoise Lake ceased except for short periods of testing or demonstration. Total imports stored in Turquoise Lake amounted to 16,540 AF.

Busk-Ivanhoe imports through the Carlton Tunnel stored totaled 5,780 AF. Pueblo Board of Water Works (BWWP) received 1,853 AF of the imports and the City of Aurora received 3,927 AF. On July 2, 2014, Colorado State inspectors discovered the outlet pipe feeding Ivanhoe Creek from Ivanhoe Lake was failing due to corrosion. At that time, BWWP stopped diverting inflow and evacuated the reservoir through the Carlton (Busk-Ivanhoe) Tunnel. Drawdown at Ivanhoe Lake was completed by July 14, 2014.

Spring runoff and releases down Lake Fork Creek were unexceptional. A bridge, belonging to a private party, and two culverts, belonging to Reclamation, provide access for personnel to the Mt. Elbert conduit and a gaging station that are located downstream from the Sugarloaf Powerplant. During the spring, the culverts lost integrity and collapsed which restricted access to the bridge. It was determined the collapse was due more to the age of the culverts than the loading. Reclamation will replace the culverts.

Project water imports through the Boustead Tunnel totaled 80,807 AF with 80,316 AF stored. This is 125 percent of average.

Exhibits 5, 6, and 7 show the monthly imports through the Boustead, Homestake, and Busk-Ivanhoe Tunnels, respectively.

E. Mt. Elbert Conduit/Halfmoon Creek Diversion

During the 2014 water year, 94,721 AF of water released from Turquoise Lake through the Sugarloaf Powerplant; 9,899 AF of water bypassed around the powerplant; and 16,159 AF of water diverted from Halfmoon Creek were conveyed through the Mt. Elbert Conduit to the Mt. Elbert Forebay, and subsequently to Twin Lakes through the Mt. Elbert Power Plant. An additional 3,903 AF of water were released into the conduit from Turquoise Lake for use by the Leadville Federal Fish Hatchery. The water was diverted from the conduit and delivered to the hatchery. It was then returned to the Arkansas River and stored in Pueblo Reservoir. The conduit operations are shown on Exhibit 11.

F. Twin Lakes/Mt. Elbert Forebay and Mt. Elbert Pumped-Storage Power Plant

The storage in Twin Lakes was 90,411 AF and in Mt. Elbert Forebay was 8,318 AF of water (Twin Lakes elevation 9,178.26 feet and Mt. Elbert Forebay elevation 9,635.03 feet) on September 30, 2013, which was 79 percent of average. Twin Lakes releases to Lake Creek were made throughout the winter to pass the flow of the Mt. Elbert Conduit, and to transfer the project water stored in Twin Lakes to Pueblo Reservoir.

The Standard Operating Procedure (SOP) for Twin Lakes states dead pool storage is 54,955 AF (elevation 9,157.5 feet). In the late 1980s a bypass line used during construction was filled in. With the loss of that line, the dead pool changed to 63,324 AF (elevation 9,162.9 feet). This has been used for operations since that time but the SOP has never been changed. A change request has been submitted.

The native inflow of 7,751 AF was stored in the Twin Lakes Canal Company (TLCC) storage space from November 15, 2013 through March 15, 2014 as winter water storage. A total of 11,977 AF of project water, which is the minimum of 15 cfs/day with additional releases to move water to Pueblo Reservoir, was released to Lake Creek during this time.

Colorado Division of Water Resources (CODWR) determines the amount of water trapped as bank storage in ice before March 15, 2014 that will be credited to the TLCC as winter water. The credited amount was prorated between the first day of melting and the average last day of freezing at Twin Lakes. This amount was deducted from native inflows and credited daily to the TLCC account.

On January 29, 2014, a CODWR employee changed the instrumentation at the Twin Lakes outflow gage (LAKTLBCO) and an incorrect wheel size was entered during the station

programming. On March 20, 2014 Joseph Talbott from CODWR and Victor Lee from Reclamation sent in a corrected schedule of readings agreeing that the amount of water under-released to Lake Creek during winter water storage at Twin Lakes was a total of 3,590.6 AF. Since the releases from Twin Lakes into Pueblo Reservoir were inadequate, the native flow captured as winter water in Pueblo was 3,231.54 AF (3,590.6 less transit loss) too low. After discussions with CODWR, BOR debited the change in Pueblo winter water storage totals from TLCC, released project water down Lake Creek and recovered it in Pueblo Reservoir to be stored under the Pueblo Reservoir Winter Water Program.

The Twin Lakes/Mt. Elbert Forebay combined water storage reached a low point of 95,059.26 AF on April 13, 2014 and was at its high point of 135,732.03 AF on July 2, 2014. On September 30, 2014, Twin Lakes held 120,776.29 AF (elevation 9,192.27 feet) and Mt. Elbert Forebay held 8,686.9 AF (elevation 9,636.47 feet), the combined total of which was 106 percent of average. Exhibits 12 and 13 show the precipitation and pan evaporation at Turquoise Lake. Table 7 and Exhibit 14 depict the monthly operation of Twin Lakes during WY2014.

A total of 10,000 AF of Fry-Ark Project water was made available to the Upper Arkansas Voluntary Flow Management Program (VFMP) to augment flows at the gage Arkansas River at Wellsville. While the Bureau of Reclamation is not a party to the May 2006 agreement between Southeastern Colorado Water Conservancy District; Colorado Parks and Wildlife; Chafee County; the Arkansas River Outfitters Association; and Trout Unlimited, project water is made available when possible to support this agreement. Water may be called for year-round to support fishery flows at 250 cfs. Recreational flows may be provided from July 1, 2014 to August 15, 2014 if the flow at Wellsville is below 700 cfs. High native flows kept Colorado Department of Parks and Wildlife from calling for the water this year.

There was a dual outage of the pumping units at Mt. Elbert in February and March when Unit 2 was unavailable because of scheduled repairs and Unit 1 underwent emergency repairs. One unit available is sufficient to allow the full use of Mt. Elbert Conduit to move water from Turquoise Lake to Twin Lakes. The loss of both units when BOR is usually drafting the upper reservoirs in preparation for spring and summer imports meant project water was released down Lake Fork Creek rather than Mt. Elbert Conduit at a loss for power generation.

A total of 252,166 megawatt hours of energy was generated at the power plant, with 713,814 AF of water; 117,089 AF came through the Mt. Elbert Conduit; and 548,177 AF were first pumped to the Mt. Elbert Forebay from Twin Lakes during off-peak electric demand hours. Table 8 depicts the monthly power plant operation for WY2014.

G. Pueblo Reservoir

The water storage content of Pueblo Reservoir was 129,480 AF (elevation 4,8465.05 feet) on September 30, 2013, approximately 94 percent of average.

The reservoir reached a high point in storage of 177,064 AF (elevation 4859.35 feet) on March 14, 2014 and a low point on July 23, 2014 at 120,710 AF (elevation 4843.02 feet). There were 171,838 AF (elevation 4,859.26 feet) in storage on September 30, 2013. This is 127 percent of average.

A total of 32,262 AF of native inflow was stored in the reservoir under the Pueblo Reservoir winter water storage program between November 15, 2013-March 14, 2014. This program allows agricultural entities to store native flows during the winter to be used during irrigation season. On March 15, 2014 it was distributed to agricultural entities. After March 15, 2014, 17,208 AF of winter water and 794 AF of winter water carryover were released.

The monsoonal rains began July 10, 2014. A week of heavy storms produced runoff below Pueblo Dam that pushed the flow at the Arkansas River at Avondale (ARKAVOCO) gage over the flood flow of 6,000 cfs on July 17, 2014. A one day Level 1 response was declared by Reclamation although flood operations were not considered by the State of Colorado or the Corps of Engineers because the event was over before any gate operations could have affected the peak.

Table 9 and Exhibit 19 depict Pueblo Reservoir monthly operations during WY2014. The 2013 - 2014 winter water storage is shown on Exhibit 16, and the winter water releases are shown on Exhibit 17. The precipitation and evaporation at the reservoir are shown on Exhibits 15 and 18. Project water releases are shown on Exhibit 20.

H. Storage Contracts

There were eleven long term contracts for storage of 158,568 AF of non-project water in project reservoirs on the east slope in effect in WY2014.

Twenty-two contracts totaling 14,739 AF were interim, one-year contracts for "if-and-when" storage space in Pueblo Reservoir. Under "if and when" contracts, non-project water may be stored in project storage space as long as that storage space is not required for project water. Contracts are in effect from January 1, 2014 - December 31, 2014.

I. Project Water Sales and Deliveries

There were 51,850 AF of Fryingpan-Arkansas Project water made available to the Southeastern Colorado Water Conservancy District during WY2014 for initial allocation. Beaver Park Water, Inc. rescinded a request for 50AF of project water after deciding not to provide information on shareholders. A second allocation of 4,142AF was made available in August. The District entities called for 47,885AF of project and 12,124 project carryover water during the year.

Evaporation reduced the project carryover water in storage by 14,372 AF. By the end of the water year (September 30, 2014), the District had 34,152 AF of 2014 allocated water and 95,733 AF of carryover water remaining in storage. The monthly release of project water from Pueblo Reservoir is shown on Exhibit 21.

J. Reservoir Storage Allocation Data

Table 10 presents the reservoir storage allocations for the five project reservoirs.

K. Reservoir Evaporation and Precipitation

Tables 12 and 13 present the monthly average evaporation and precipitation at the four weather stations near project facilities. When an evaporation pan is not in service and a reservoir is not completely ice-covered, the daily water surface evaporation is computed using seasonal evaporation factors. Those factors are listed in Table 11. The assumption is that there is no evaporation from a reservoir water surface when ice completely covers the reservoir.

L. Flood Control Benefits

The Army Corps of Engineers estimated that the operations at Ruedi Reservoir during WY2014 did not prevent flood damages. Since impoundment, Ruedi Reservoir has prevented a total of \$3,002,000 (not adjusted for inflation) in potential flood damages.

Runoff and the monsoon season were average to above average. The gage at Avondale on the Arkansas River (ARKAVCO) briefly exceeded the maximum safe channel capacity of 6,000 cfs, a stage of 7.0 feet, on July 17, 2014 although the State of Colorado and the Corps of Engineers did not request Pueblo Reservoir enter into flood storage operations. The Army Corps of Engineers estimated that the operations at Pueblo Reservoir prevented \$431,900 of flood damages during WY2014. Since impoundment, Pueblo Reservoir has prevented a total of \$32,292,000 (not adjusted for inflation) in potential flood damages.

Table 14 shows the historic flood control benefits provided by Pueblo and Ruedi Dams.

APPENDIX A: TABLES

1. Ruedi Reservoir Operations WY2014

Fryingpan-Arkansas Project

Unit: 1,000 AF

Month	Inflow	Evaporation	Outflow	End of Month Content	Water Surface Elevation (msl)
NOV 2013	4.1	0	5.2	85.4	7,748.01
JAN 2014	3.1	0	6.3	79.8	7,741.57
MAR 2014	3.9	0	11.8	66.6	7,725.07
MAY 2014	29.7	.2	13.5	80.9	7,742.86
JUL 2014	13.7	.6	13.3	101.4	7,765.02
SEP 2014	7.8	.2	14.7	87.9	7,750.77
Total*	135.3	2.1	131.4		

*Rounding may introduce discrepancies between monthly and yearly totals

2. Ruedi Reservoir Releases for Contracts WY2014

Fryingpan-Arkansas Project

Unit: 1,000 AF

Month	Round 1	Round 2 Nonfish	Round 2 Fish
NOV-2013			
JAN-2014			
MAR-2014			
MAY-2014			
JUL-2014			
SEP-2014			6818

3. Ruedi Reservoir Releases for Endangered Fish WY2014

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2014
 April

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL RESERVOIR RELEASE (CFS)	ROCKY FORK CREEK (CFS)	FRYINGPAN RIVER GAGE BELOW DAM (CFS)	RUEDI CALLED OUT? (Y= YES) (N= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	REQUIRED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
TUE	4/1/2014	7,724.71	66,333	74	0	211	2	213	N	39	0	0	1,973
WED	4/2/2014	7,724.32	66,041	63	0	211	2	213	N	39	0	0	1,835
THU	4/3/2014	7,723.94	65,757	68	0	211	2	213	N	39	0	0	1,656
FRI	4/4/2014	7,723.55	65,466	64	0	210	2	213	N	39	0	0	1,519
SAT	4/5/2014	7,723.18	65,190	72	0	211	2	213	N	39	0	0	1,472
SUN	4/6/2014	7,722.80	64,908	68	0	211	2	213	N	39	0	0	1,446
MON	4/7/2014	7,722.42	64,627	69	0	211	2	213	N	39	0	0	1,415
TUE	4/8/2014	7,722.06	64,361	76	0	210	3	213	N	39	0	0	1,352
WED	4/9/2014	7,721.75	64,132	95	0	210	3	213	N	39	0	0	1,289
THU	4/10/2014	7,721.52	63,963	125	0	210	4	214	N	39	0	0	1,515
FRI	4/11/2014	7,721.38	63,860	161	0	213	4	217	N	39	0	0	2,178
SAT	4/12/2014	7,721.38	63,860	215	0	215	4	219	N	39	0	0	2,984
SUN	4/13/2014	7,721.33	63,824	196	0	215	5	219	N	39	0	0	4,115
MON	4/14/2014	7,721.19	63,721	162	0	214	5	219	N	39	0	0	4,524
TUE	4/15/2014	7,721.04	63,611	159	0	214	5	219	N	39	0	0	3,520
WED	4/16/2014	7,720.87	63,486	148	0	211	5	216	N	39	0	0	3,049
THU	4/17/2014	7,720.70	63,362	147	0	210	5	215	N	39	0	0	2,894
FRI	4/18/2014	7,720.66	63,333	196	0	210	6	216	N	39	0	0	2,910
SAT	4/19/2014	7,720.77	63,413	252	0	211	6	217	N	39	0	0	3,400
SUN	4/20/2014	7,720.96	63,552	282	0	212	7	219	N	39	0	0	4,692
MON	4/21/2014	7,721.34	63,831	352	0	212	7	219	N	39	0	0	5,672
TUE	4/22/2014	7,721.87	64,221	408	0	212	8	220	N	39	0	0	7,154
WED	4/23/2014	7,722.34	64,568	394	0	219	10	228	N	39	0	0	7,676
THU	4/24/2014	7,722.53	64,708	339	0	269	12	280	N	39	0	0	7,460
FRI	4/25/2014	7,722.66	64,805	331	0	282	12	295	N	39	0	0	6,960
SAT	4/26/2014	7,722.92	64,997	379	0	282	13	295	N	39	0	0	6,998
SUN	4/27/2014	7,723.12	65,146	357	0	282	14	296	N	39	0	0	7,661
MON	4/28/2014	7,723.10	65,131	275	0	282	14	296	N	39	0	0	7,216
TUE	4/29/2014	7,722.99	65,049	241	0	282	13	295	N	39	0	0	6,491
WED	4/30/2014	7,722.79	64,901	207	0	282	12	294	N	39	0	0	5,900
Averages		7,722.21	64,472	199	0	228	6	234		39	0		3,964
Totals (acft)				11,853	0	13,555	379	13,934		2,321	0	0	235,894

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 15,412.5 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2014

FRYINGPAN-ARKANSAS PROJECT
RUEDI RESERVOIR
RELEASES FOR ENDANGERED FISH
WATER YEAR 2014
May

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL RESERVOIR RELEASE (CFS)	ROCKY FORK CREEK (CFS)	FRYINGPAN RIVER GAGE BELOW DAM (CFS)	RUEDI CALLED OUT? (Y= YES) (N= NO)	REQUIRED MIN FLOW w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
THU	5/1/2014	7,722.58	64,745	206	2	282	11	293	N	110	0	0	5,266
FRI	5/2/2014	7,722.34	64,568	156	4	242	9	251	N	110	0	0	4,818
SAT	5/3/2014	7,722.34	64,568	234	4	230	9	238	N	110	0	0	4,566
SUN	5/4/2014	7,722.58	64,745	324	4	230	8	238	N	110	0	0	4,981
MON	5/5/2014	7,723.05	65,094	410	4	230	8	238	N	110	0	0	6,486
TUE	5/6/2014	7,723.61	65,510	444	4	229	10	240	N	110	0	0	7,988
WED	5/7/2014	7,724.16	65,921	440	4	229	13	242	N	110	0	0	8,923
THU	5/8/2014	7,724.59	66,243	396	4	229	15	245	N	110	0	0	9,144
FRI	5/9/2014	7,724.94	66,506	348	4	211	16	227	N	110	0	0	8,670
SAT	5/10/2014	7,725.24	66,732	319	4	201	15	216	N	110	0	0	7,929
SUN	5/11/2014	7,725.62	67,019	350	4	201	15	216	N	110	0	0	8,368
MON	5/12/2014	7,725.81	67,162	278	4	201	14	215	N	110	0	0	8,816
TUE	5/13/2014	7,725.94	67,261	254	4	200	13	214	N	110	0	0	7,750
WED	5/14/2014	7,726.04	67,336	243	4	201	12	213	N	110	0	0	7,153
THU	5/15/2014	7,726.11	67,389	234	7	201	11	212	N	110	0	0	5,902
FRI	5/16/2014	7,726.22	67,473	249	7	201	10	211	N	110	0	0	5,593
SAT	5/17/2014	7,726.34	67,564	253	7	201	10	211	N	110	0	0	5,549
SUN	5/18/2014	7,726.61	67,770	311	7	201	10	210	N	110	0	0	5,844
MON	5/19/2014	7,727.04	68,098	373	7	201	11	212	N	110	0	0	6,887
TUE	5/20/2014	7,727.69	68,596	459	7	201	14	215	N	110	0	0	8,583
WED	5/21/2014	7,728.49	69,213	519	7	201	20	221	N	110	0	0	10,587
THU	5/22/2014	7,729.36	69,889	549	7	202	24	226	N	110	0	0	13,727
FRI	5/23/2014	7,730.35	70,663	600	7	202	28	230	N	110	0	0	13,582
SAT	5/24/2014	7,731.56	71,617	692	7	204	33	238	N	110	0	0	14,193
SUN	5/25/2014	7,732.91	72,693	753	7	204	34	238	N	110	0	0	15,980
MON	5/26/2014	7,734.01	73,576	658	7	205	33	238	N	110	0	0	17,049
TUE	5/27/2014	7,735.16	74,509	682	7	205	35	239	N	110	0	0	17,466
WED	5/28/2014	7,736.70	75,769	851	7	208	41	249	N	110	0	0	19,050
THU	5/29/2014	7,738.78	77,491	1,098	7	222	49	271	N	110	0	0	20,929
FRI	5/30/2014	7,741.13	79,468	1,275	7	272	58	329	N	110	0	0	22,608
SAT	5/31/2014	7,742.86	80,943	1,112	7	361	68	428	N	110	0	0	24,396
Averages		7,728.39	69,230	486	6	220	21	241		110	0		10,606
Totals (acft)				29,888	341	13,505	1,303	14,808		6,764	0	0	652,139

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 15,412.5 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2014

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2014
 June

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL RESERVOIR RELEASE (CFS)	ROCKY FORK CREEK (CFS)	FRYINGPAN RIVER GAGE BELOW DAM (CFS)	RUEDI CALLED OUT? (Y= YES) (N= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
SUN	6/1/2014	7,744.48	82,341	1,183	18	460	70	530	N	110	0	0	24,926
MON	6/2/2014	7,745.66	83,370	1,095	18	558	70	628	N	110	0	0	25,053
TUE	6/3/2014	7,746.76	84,335	1,182	19	677	70	748	N	110	0	0	24,065
WED	6/4/2014	7,748.14	85,555	1,213	19	579	72	651	N	110	0	0	23,006
THU	6/5/2014	7,749.66	86,911	1,165	19	462	71	533	N	110	0	0	22,540
FRI	6/6/2014	7,751.02	88,135	1,059	19	423	67	490	N	110	0	0	21,977
SAT	6/7/2014	7,752.40	89,388	1,003	19	352	63	415	N	110	0	0	20,606
SUN	6/8/2014	7,753.57	90,460	912	19	352	59	412	N	110	0	0	19,109
MON	6/9/2014	7,754.31	91,142	718	19	355	55	410	N	110	0	0	17,179
TUE	6/10/2014	7,754.96	91,744	680	20	357	51	408	N	110	0	0	14,776
WED	6/11/2014	7,755.49	92,237	602	20	334	49	383	N	110	0	0	13,970
THU	6/12/2014	7,756.24	92,937	635	20	262	48	310	N	110	0	0	13,799
FRI	6/13/2014	7,757.18	93,819	698	20	234	45	279	N	110	0	0	13,896
SAT	6/14/2014	7,758.38	94,954	793	20	201	44	245	N	110	0	0	13,872
SUN	6/15/2014	7,759.12	95,659	576	20	201	41	242	N	110	0	0	13,056
MON	6/16/2014	7,759.72	96,233	510	20	201	38	239	N	110	0	0	11,606
TUE	6/17/2014	7,760.27	96,760	487	20	201	36	237	N	110	0	0	10,647
WED	6/18/2014	7,760.86	97,329	508	20	201	35	236	N	110	0	0	10,179
THU	6/19/2014	7,761.33	97,783	451	20	201	33	234	N	110	0	0	9,461
FRI	6/20/2014	7,761.82	98,258	462	20	202	31	233	N	110	0	0	8,803
SAT	6/21/2014	7,762.34	98,764	478	20	202	30	232	N	110	0	0	8,938
SUN	6/22/2014	7,762.73	99,145	414	21	201	29	231	N	110	0	0	8,819
MON	6/23/2014	7,763.12	99,526	399	21	186	29	215	N	110	0	0	8,254
TUE	6/24/2014	7,763.52	99,919	374	21	155	28	183	N	110	0	0	8,046
WED	6/25/2014	7,763.92	100,312	374	21	155	27	182	N	110	0	0	7,729
THU	6/26/2014	7,764.33	100,716	380	21	156	26	182	N	110	0	0	7,624
FRI	6/27/2014	7,764.71	101,091	378	21	168	25	194	N	110	0	0	7,477
SAT	6/28/2014	7,764.96	101,339	378	21	232	25	257	N	110	0	0	7,147
SUN	6/29/2014	7,765.10	101,478	376	21	285	23	308	N	110	0	0	7,035
MON	6/30/2014	7,765.23	101,607	385	21	299	22	321	N	110	0	0	7,363
Averages		7,757.71	94,442	662	20	295	44	339		110	0		13,699
Totals (acft)				39,409	1,184	17,562	2,600	20,162		6,546	0	0	815,138

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 15,412.5 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2014

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2014
 July

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL RESERVOIR RELEASE (CFS)	ROCKY FORK CREEK (CFS)	FRYINGPAN RIVER GAGE BELOW DAM (CFS)	RUEDI CALLED OUT? (Y= YES) (N= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
TUE	7/1/2014	7,765.35	101,726	377	19	298	21	319	N	110	0	0	7,301
WED	7/2/2014	7,765.35	101,726	318	19	299	20	319	N	110	0	0	6,988
THU	7/3/2014	7,765.29	101,666	288	19	299	19	318	N	110	0	0	6,837
FRI	7/4/2014	7,765.20	101,577	272	19	299	19	317	N	110	0	0	6,693
SAT	7/5/2014	7,765.08	101,458	257	19	298	18	316	N	110	0	0	6,488
SUN	7/6/2014	7,764.95	101,329	252	19	298	17	315	N	110	0	0	6,312
MON	7/7/2014	7,764.82	101,200	253	19	299	16	315	N	110	0	0	6,042
TUE	7/8/2014	7,764.69	101,072	217	19	263	15	278	N	110	0	0	5,762
WED	7/9/2014	7,764.62	101,002	224	19	241	15	255	N	110	0	0	5,291
THU	7/10/2014	7,764.62	101,002	237	19	218	14	233	N	110	0	0	4,806
FRI	7/11/2014	7,764.65	101,032	222	19	188	13	201	N	110	0	0	4,655
SAT	7/12/2014	7,764.71	101,091	239	19	190	11	201	N	110	0	0	4,932
SUN	7/13/2014	7,764.74	101,121	224	19	190	11	201	N	110	0	0	4,803
MON	7/14/2014	7,764.73	101,111	204	19	191	10	201	N	110	0	0	4,588
TUE	7/15/2014	7,764.78	101,161	234	19	191	10	201	N	110	0	0	4,220
WED	7/16/2014	7,764.84	101,220	240	19	191	10	201	N	110	0	0	4,124
THU	7/17/2014	7,764.88	101,259	230	19	191	10	201	N	110	0	0	4,126
FRI	7/18/2014	7,764.86	101,240	200	19	191	9	201	N	110	0	0	3,799
SAT	7/19/2014	7,764.83	101,210	195	19	191	9	200	N	110	0	0	3,598
SUN	7/20/2014	7,764.81	101,190	200	19	191	9	200	N	110	0	0	3,512
MON	7/21/2014	7,764.77	101,151	190	19	191	8	199	N	110	0	0	3,377
TUE	7/22/2014	7,764.71	101,091	180	19	191	8	199	N	110	0	0	3,106
WED	7/23/2014	7,764.66	101,042	185	19	191	8	199	N	110	0	0	2,543
THU	7/24/2014	7,764.66	101,042	205	19	187	8	194	N	110	0	0	2,133
FRI	7/25/2014	7,764.69	101,072	204	19	170	8	178	N	110	0	0	2,076
SAT	7/26/2014	7,764.71	101,091	198	19	169	8	176	N	110	0	0	2,015
SUN	7/27/2014	7,764.73	101,111	192	19	163	8	171	N	110	0	0	2,060
MON	7/28/2014	7,764.81	101,190	222	19	164	8	171	N	110	0	0	2,097
TUE	7/29/2014	7,764.94	101,319	247	19	163	8	171	N	110	0	0	2,344
WED	7/30/2014	7,765.02	101,398	234	19	175	8	183	N	110	0	0	2,855
THU	7/31/2014	7,765.06	101,438	225	19	186	8	194	N	110	0	0	2,651
Averages		7,764.86	101,237	231	19	215	12	227		110	0		4,262
Totals (acft)				14,211	1,152	13,228	718	13,945		6,764	0	0	262,083

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 15,412.5 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2014

FRYINGPAN-ARKANSAS PROJECT
RUEDI RESERVOIR
RELEASES FOR ENDANGERED FISH
WATER YEAR 2014
August

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL RESERVOIR RELEASE (CFS)	ROCKY FORK CREEK (CFS)	FRYINGPAN RIVER GAGE BELOW DAM (CFS)	RUEDI CALLED OUT? (Y= YES) (N= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
FRI	8/1/2014	7,765.12	101,497	227	13	183	11	194	N	110	0	0	2,725
SAT	8/2/2014	7,765.11	101,487	190	13	182	13	194	N	110	0	0	3,160
SUN	8/3/2014	7,765.05	101,428	165	13	181	14	195	N	110	0	0	3,136
MON	8/4/2014	7,764.98	101,358	159	13	180	14	194	N	110	0	0	3,323
TUE	8/5/2014	7,764.93	101,309	167	13	178	16	194	N	110	0	0	2,870
WED	8/6/2014	7,764.82	101,200	161	13	202	15	217	N	110	42	83	2,423
THU	8/7/2014	7,764.59	100,973	142	13	243	12	255	N	110	100	281	1,953
FRI	8/8/2014	7,764.34	100,726	136	13	247	7	254	N	110	100	479	1,673
SAT	8/9/2014	7,764.08	100,469	130	13	246	6	253	N	110	100	678	1,587
SUN	8/10/2014	7,763.82	100,213	131	13	247	6	253	N	110	100	876	1,474
MON	8/11/2014	7,763.54	99,939	121	13	246	6	252	N	110	100	1,074	1,317
TUE	8/12/2014	7,763.26	99,664	139	13	264	6	270	N	110	150	1,372	1,177
WED	8/13/2014	7,763.02	99,429	162	13	268	6	273	N	110	150	1,669	1,050
THU	8/14/2014	7,762.77	99,185	158	13	268	5	273	N	110	150	1,967	1,182
FRI	8/15/2014	7,762.50	98,921	148	13	267	5	273	N	110	150	2,264	1,309
SAT	8/16/2014	7,762.22	98,648	143	13	267	5	273	N	110	150	2,562	1,415
SUN	8/17/2014	7,761.93	98,365	138	13	267	5	272	N	110	150	2,860	1,363
MON	8/18/2014	7,761.63	98,074	134	13	267	5	272	N	110	150	3,157	1,212
TUE	8/19/2014	7,761.34	97,793	139	13	268	5	273	N	110	150	3,455	1,172
WED	8/20/2014	7,761.07	97,532	149	13	267	5	272	N	110	150	3,752	1,251
THU	8/21/2014	7,760.77	97,242	134	13	267	5	272	N	110	150	4,050	1,283
FRI	8/22/2014	7,760.48	96,963	139	13	267	5	272	N	110	150	4,347	1,267
SAT	8/23/2014	7,760.24	96,731	164	13	267	5	272	N	110	150	4,645	1,624
SUN	8/24/2014	7,759.96	96,462	144	13	267	5	271	N	110	150	4,942	1,735
MON	8/25/2014	7,759.67	96,185	140	13	267	5	271	N	110	150	5,240	1,841
TUE	8/26/2014	7,759.38	95,907	139	13	266	5	271	N	110	150	5,537	1,702
WED	8/27/2014	7,759.19	95,726	188	13	266	5	271	N	110	150	5,835	1,900
THU	8/28/2014	7,759.04	95,582	206	13	265	5	270	N	110	150	6,132	1,962
FRI	8/29/2014	7,758.89	95,440	206	13	265	5	270	N	110	150	6,430	2,029
SAT	8/30/2014	7,758.68	95,240	178	13	265	5	270	N	110	150	6,727	2,008
SUN	8/31/2014	7,758.42	94,993	153	13	265	5	270	N	110	150	7,025	1,908
Averages		7,762.09	98,538	156	13	247	7	254		110	114		1,807
Totals (acft)				9,576	814	15,207	434	15,641		6,764	7,025	7,025	111,136

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 15,412.5 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2014

FRYINGPAN-ARKANSAS PROJECT
RUEDI RESERVOIR
RELEASES FOR ENDANGERED FISH
WATER YEAR 2014
September

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL RELEASE (CFS)	ROCKY FORK CREEK (CFS)	FRYINGPAN RIVER GAGE BELOW DAM (CFS)	RUEDI CALLED OUT? (Y= YES) (N= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
MON	9/1/2014	7,758.15	94,737	143	8	265	5	270	N	110	150	7,322	1,760
TUE	9/2/2014	7,757.87	94,471	139	8	264	5	269	N	110	150	7,620	1,632
WED	9/3/2014	7,757.55	94,169	120	8	265	4	269	N	110	150	7,917	1,676
THU	9/4/2014	7,757.24	93,877	124	8	264	4	268	N	110	150	8,215	1,428
FRI	9/5/2014	7,756.95	93,603	134	8	264	4	268	N	110	150	8,513	1,239
SAT	9/6/2014	7,756.65	93,322	130	8	264	4	268	N	110	150	8,810	1,334
SUN	9/7/2014	7,756.34	93,031	125	8	264	4	268	N	110	150	9,108	1,273
MON	9/8/2014	7,756.02	92,731	120	8	264	4	268	N	110	150	9,405	1,233
TUE	9/9/2014	7,755.87	92,591	201	8	264	4	268	N	110	100	9,603	1,780
WED	9/10/2014	7,755.83	92,554	252	8	263	4	267	N	110	100	9,802	2,781
THU	9/11/2014	7,755.68	92,414	200	8	263	4	268	N	110	100	10,000	2,966
FRI	9/12/2014	7,755.45	92,199	163	8	263	5	268	N	110	100	10,198	2,443
SAT	9/13/2014	7,755.20	91,967	153	8	263	5	268	N	110	100	10,397	2,099
SUN	9/14/2014	7,754.91	91,698	134	8	262	5	267	N	110	100	10,595	1,871
MON	9/15/2014	7,754.61	91,420	131	8	263	4	268	N	110	100	10,794	1,753
TUE	9/16/2014	7,754.31	91,143	131	8	264	4	268	N	110	100	10,992	1,696
WED	9/17/2014	7,753.99	90,847	122	8	263	4	267	N	110	125	11,240	1,500
THU	9/18/2014	7,753.67	90,552	122	8	263	4	266	N	110	125	11,488	1,466
FRI	9/19/2014	7,753.34	90,249	117	8	263	4	266	N	110	125	11,736	1,405
SAT	9/20/2014	7,752.99	89,928	108	8	262	4	266	N	110	125	11,984	1,356
SUN	9/21/2014	7,752.66	89,626	117	8	262	4	265	N	110	125	12,232	1,355
MON	9/22/2014	7,752.38	89,370	140	8	261	4	265	N	110	125	12,480	1,640
TUE	9/23/2014	7,752.10	89,115	124	8	245	4	249	N	110	125	12,727	1,886
WED	9/24/2014	7,751.82	88,860	106	8	227	4	230	N	109	113	12,951	1,910
THU	9/25/2014	7,751.60	88,661	98	8	191	4	195	N	102	75	13,099	1,777
FRI	9/26/2014	7,751.40	88,480	107	8	191	4	195	N	110	75	13,248	1,612
SAT	9/27/2014	7,751.23	88,326	121	7	191	4	195	N	110	75	13,397	1,558
SUN	9/28/2014	7,751.01	88,126	98	7	191	4	194	N	101	75	13,546	2,037
MON	9/29/2014	7,750.89	88,018	144	7	191	4	195	N	110	75	13,694	2,023
TUE	9/30/2014	7,750.76	87,901	139	7	190	4	194	N	110	75	13,843	2,034
Averages		7,754.28	91,133	135	8	247	4	251			115		1,751
Totals (acft)				8,060	455	14,698	238	14,936			6,818	13,843	104,181

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 15,412.5 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2014

FRYINGPAN-ARKANSAS PROJECT
RUEDI RESERVOIR
RELEASES FOR ENDANGERED FISH
WATER YEAR 2014
October

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL RESERVOIR RELEASE (CFS)	ROCKY FORK CREEK (CFS)	FRYINGPAN RIVER GAGE BELOW DAM (CFS)	RUEDI CALLED OUT? (Y= YES) (N= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
WED	10/1/2014	7,750.64	87,793	139	3	191	4	194	N	110	75	13,992	2,942
THU	10/2/2014	7,750.52	87,685	139	3	190	4	195	N	110	75	14,141	2,921
FRI	10/3/2014	7,750.39	87,567	128	3	184	5	189	N	110	70	14,279	2,526
SAT	10/4/2014	7,750.31	87,495	135	3	168	5	173	N	110	50	14,378	2,192
SUN	10/5/2014	7,750.23	87,423	133	3	166	7	173	N	110	50	14,477	1,966
MON	10/6/2014	7,750.13	87,333	125	3	168	6	173	N	110	50	14,577	1,904
TUE	10/7/2014	7,750.04	87,252	131	3	169	5	174	N	110	50	14,676	1,958
WED	10/8/2014	7,749.93	87,153	123	3	170	4	174	N	110	50	14,775	1,926
THU	10/9/2014	7,749.81	87,046	118	3	170	4	174	N	110	50	14,874	1,898
FRI	10/10/2014	7,749.74	86,983	141	3	170	4	174	N	110	50	14,973	2,018
SAT	10/11/2014	7,749.66	86,912	135	3	169	5	174	N	110	50	15,073	2,006
SUN	10/12/2014	7,749.59	86,849	139	3	168	6	174	N	110	50	15,172	2,039
MON	10/13/2014	7,749.50	86,769	130	3	168	6	174	N	110	50	15,271	2,063
TUE	10/14/2014	7,749.43	86,706	139	3	167	6	173	N	110	50	15,370	2,100
WED	10/15/2014	7,749.39	86,670	142	3	158	6	163	N	110	22	15,413	2,039
THU	10/16/2014	7,749.45	86,724	135	3	105	6	111	N	110	0	15,413	2,006
FRI	10/17/2014	7,749.54	86,804	137	3	94	6	100	N	110	0	15,413	1,901
SAT	10/18/2014	7,749.61	86,867	129	3	94	6	100	N	110	0	15,413	1,856
SUN	10/19/2014	7,749.67	86,921	124	3	95	6	101	N	110	0	15,413	1,790
MON	10/20/2014	7,749.72	86,965	120	3	95	6	101	N	110	0	15,413	1,730
TUE	10/21/2014	7,749.77	87,010	120	3	95	6	101	N	110	0	15,413	1,692
WED	10/22/2014	7,749.87	87,100	143	3	95	6	101	N	110	0	15,413	1,858
THU	10/23/2014	7,749.96	87,180	138	3	95	6	101	N	110	0	15,413	1,737
FRI	10/24/2014	7,750.03	87,243	130	3	95	6	101	N	110	0	15,413	1,790
SAT	10/25/2014	7,750.08	87,288	121	3	95	6	101	N	110	0	15,413	1,677
SUN	10/26/2014	7,750.12	87,324	117	3	96	5	101	N	110	0	15,413	1,616
MON	10/27/2014	7,750.13	87,333	103	3	96	5	101	N	108	0	15,413	1,588
TUE	10/28/2014	7,750.14	87,342	104	3	96	5	101	N	109	0	15,413	1,587
WED	10/29/2014	7,750.14	87,342	98	3	96	5	100	N	103	0	15,413	1,602
THU	10/30/2014	7,750.16	87,360	108	3	96	4	100	N	110	0	15,413	1,691
FRI	10/31/2014	7,750.17	87,369	102	3	95	5	99	N	107	0	15,413	1,680
Averages		7,749.93	87,155	127	3	133	5	138			26		1,945
Totals (acft)				7,787	171	8,148	325	8,473			1,570	15,412.70	119,602

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 15,412.5 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

4. Fryingpan-Arkansas Project Transmountain Diversions WY2014

Fryingpan-Arkansas Project

Unit: AF

	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
South Fork	33.5	2,247.5	6,944.8	2,185.6	575.8	17.5	12,004.7
No Name	0.4	863.4	2,200.3	56.5	0.2	0.0	3,120.8
Hunter	2.0	1,325.4	3,217.0	479.6	0.2	0.0	5,024.2
Midway	7.5	1,297.2	4,276.0	1,080.6	6.3	0.0	6,667.7
Sawyer	15.1	454.6	1,512.8	609.1	230.9	0.0	2,822.5
Chapman¹	100.5	1,537.2	4,126.9	1,885.5	369.1	0.0	8,019.2
Subtotal							
	159.0	7,725.3	22,277.9	6,297.0	1,182.6	17.5	37,659.3
Carter							
	35.7	908.6	2,161.4	895.7	0.0	0.0	4,001.5
North Fork							
	0.0	282.6	887.2	187.6	4.2	4.0	1,365.6
Mormon							
	129.7	1,274.8	2,533.5	541.5	0.0	0.0	4,479.5
North Cunningham							
	32.1	588.7	1,215.1	208.9	0.0	0.0	2,044.8
Middle Cunningham							
	4.8	599.8	1,710.2	258.3	0.0	0.0	2,573.0
Ivanhoe							
	122.6	1,908.9	3,291.6	302.9	0.0	0.0	5,626.0
Granite							
	0.0	296.5	948.1	157.3	23.6	0.0	1,425.5
Fryingpan							
	132.9	3,756.2	9,695.7	3,635.0	1,112.0	46.6	18,378.3
Lily Pad							
	14.7	408.4	757.3	158.5	0.0	0.0	1,338.9
Subtotal							
	472.5	10,024.6	23,200.2	6,345.6	1,139.7	50.6	41,233.2
Total							
	631.5	17,749.9	45,478.1	12,642.6	2,322.3	68.0	78,892.5
Boustead Tunnel							
	750.9	17,829.9	46,792.4	13,201.4	2,558.5	132.5	81,265.6

¹ Does not include No Name, Hunter, Sawyer and Midway

² Includes South Cunningham

³ The difference between total diversion and Charles H. Boustead Tunnel results from the accuracy limitations of the measurement and rounding

5. Fryingpan-Arkansas Project Imports - Charles H. Boustead Tunnel Outlet

Fryingpan-Arkansas Project

Unit: 1,000 AF

Water Year	Imports	Accumulated Imports	Twin Lakes Exchange	Available to SECWCD
1972	32.0	32.0	0	0.0
1973	36.8	68.8	0	16.0
1974	34.1	102.9	0	18.6
1975	37.2	140.1	0	25.0
1976	26.9	167.0	0	24.0
1977	11.4	178.4	0	25.0
1978	49.2	227.6	0	25.0
1979	53.7	281.3	0	25.6
1980	55.7	337.0	0	70.0
1981	34.6	371.6	0	25.0
1982	75.2	446.8	2.7	68.0
1983	90.8	537.6	0.3	125.0
1984	110.1	647.7	1.9	210.0
1985	70.2	717.9	1.7	289.9
1986	30.3	748.2	1.5	300.3
1987	2.2	750.4	1.1	288.0
1988	13.4	763.8	2.0	247.8
1989	36.2	800.0	1.7	197.6
1990	46.6	846.6	1.7	142.1
1991	59.1	905.7	1.5	58.7
1992	54.8	960.5	1.2	32.9
1993	86.6	1047.1	2.3	70.1
1994	52.2	1099.3	1.3	51.7
1995	90.5	1189.8	2.3	55.0
1996	36.9	1226.7	1.8	110.0
1997	78.6	1305.3	1.8	116.0
1998	51.3	1356.6	2.6	102.0
1999	40.8	1397.4	2.1	127.5
2000	44.8	1442.2	1.7	171.6
2001	45.3	1487.5	2.1	67.5
2002	13.2	1500.7	1.5	8.5
2003	54.9	1555.6	2.4	37.5
2004	27.4	1583.0	1.3	15.3
2005	54.6	1637.6	3.0	40.8
2006	61.2	1698.8	3.0	49.2
2007	54.2	1753.0	3.0	40.4
2008	90.0	1843.0	3.0	83.0
2009	82.7	1925.7	3.0	78.0

**5. Fryingpan-Arkansas Project Imports - Charles H. Boustead Tunnel Outlet
(continued)**

Fryingpan-Arkansas Project
Unit: 1,000 AF

Water Year	Imports	Accumulated Imports	Twin Lakes Exchange	Available to SECWCD
2010	56.5	1982.2	3.0	44.0
2011	98.9	2081.1	2.3	75.0
2012	13.4	2094.5	1.5	9.9
2013	46.7	2141.2	2.8	37.6
2014	80.3	2221.5	3.0	56.0

Restriction: Not to exceed 120 KAF in 1 year
 Not to exceed 2,352.8 KAF AF in 34 consecutive years.
 The imports between 1980 and 2014 are 1940.2 KAF
 1983 includes 3,120 AF imported through the Twin Lakes Tunnel

6. Turquoise Lake Operations WY2014

Fryingpan-Arkansas Project

Unit: 1,000 AF

Month	Busk-Ivanhoe Imports through Carlton	Busk-Ivanhoe Imports through Boustead	Homestake Imports	Project Imports	Native Inflow	Total Inflow	Evap	Total Outflow	End of Month Content	Water Surface Elevation (feet msl)
OCT 2013	0.2	0	0.3	0.1	0.5	1.1	0.4	2.1	101.8	9,853.41
NOV 2013	0.1	0	0.0	0.1	1.4	1.7	0.2	16.1	87.2	9,844.49
DEC 2013	0.1	0	0.0	0.1	0.3	0.5	0.0	1.7	86.0	9,843.74
JAN 2014	0.1	0	0.0	0.0	0.9	1.0	0.0	1.0	85.9	9,843.71
FEB 2014	0.1	0	0.0	0.0	0.6	0.7	0.0	0.9	85.7	9,843.57
MAR 2014	0.1	0	0.5	0.1	1.0	1.6	0.0	20.2	67.2	9,831.38
APR 2014	0.1	0	0.8	0.7	3.1	4.7	0.0	25.0	46.9	9,816.22
MAY 2014	0.9	0	7.3	17.6	8.7	34.4	0.1	25.1	56.1	9,823.37
JUN 2014	2.7	0	7.6	46.3	14.4	71.4	0.7	20.5	106.4	9,856.15
JUL 2014	1.1	0	0.1	13.2	4.3	18.7	0.5	5.6	119.0	9,863.52
AUG 2014	0.3	0	0.0	2.1	2.8	5.0	0.4	8.6	115.0	9,861.23
SEP 2014	0.1	0	0.0	0.1	0.8	1.0	0.4	3.2	112.3	9,859.65
Total*	5.8	0	16.5	80.3	38.8	141.8	2.7	129.9		

*Rounding may introduce discrepancies between monthly and yearly totals

7. Twin Lakes/Mt. Elbert Forebay Water Year 2014 Operations

Fryingpan-Arkansas Project

Unit: 1,000 AF

Date	Twin Lakes Canal Company				Mt. Elbert Conduit			Twin Lakes					
	Imports	Winter Water	Priority/ Native	Leadville Fish Hatchery	Halfmoon	Sugarloaf Bypass	Sugarloaf Powerplant	Native Inflow	Total Inflow	Evap ²	Total Outflow	End of Month Content ²	Water Elevation ³ (feet msl)
OCT 2013	2.8	0.0	0.0	0.3	0.0	0.8	0.8	4.0	8.1	0.5	7.2	99.2	9,178.40
NOV 2013	1.0	0.0	0.0	0.3	0.0	0.8	15.0	0.8	17.3	0.2	7.6	108.7	9,183.01
DEC 2013	0.7	2.2	0.0	0.3	0.0	0.8	0.7	1.2	3.2	0.0	7.5	104.3	9,180.56
JAN 2014	0.5	1.7	0.0	0.3	0.0	0.8	0.0	1.2	2.2	0.0	4.4	102.1	9,179.28
FEB 2014	0.2	2.1	0.0	0.3	0.0	0.7	0.0	2.8	3.4	0.0	8.7	96.9	9,176.45
MAR 2014	0.2	1.7	0.0	0.3	0.0	0.7	14.9	2.3	17.8	0.0	18.1	96.5	9,177.08
APR 2014	1.0	0.0	1.8	0.3	0.0	0.6	19.6	2.2	23.0	0.1	22.3	97.1	9,177.49
MAY 2014	10.1	0.1	0.0	0.3	1.6	0.6	18.4	14.8	45.1	0.8	35.5	106.0	9,181.67
JUN 2014	29.8	0.1	0.1	0.3	7.7	0.7	14.7	37.6	90.2	1.4	59.5	135.3	9,195.10
JUL 2014	10.1	0.0	0.1	0.3	4.7	0.9	3.8	18.3	37.5	0.9	44.0	127.9	9,192.24
AUG 2014	2.6	0.0	0.3	0.3	1.3	0.8	6.9	7.3	18.6	0.8	19.6	126.1	9,191.48
SEP 2014	1.8	0.0	0.0	0.3	0.8	0.7	0.0	4.6	7.7	0.8	3.5	129.5	9,192.27
TOTAL¹ (AF)	61.0	7.9	2.3	3.9	16.1	8.9	94.7	97.2	274.1	5.5	237.9		

¹ Rounding may introduce discrepancies between monthly and yearly totals

² Both Twin Lakes and Mt. Elbert Forebay

³ Elevation of Twin Lakes

⁴ Leadville Fish Hatchery diverts from Mt Elbert Conduit

8. Mt. Elbert Pumped-Storage Power Plant Water Year 2014 Operations

Fryingpan-Arkansas Project

	Net Generation mWh	Gross Generation mWh	Inflow to Mt. Elbert 1,000 AF	Water Through Generator 1,000 AF	Water Pumped From Twin Lakes To Forebay 1,000 AF
OCT 2013	20,227	20,501.6	1.3	57.4	56.2
NOV 2013	23,026	23,375.7	15.5	63.6	48.9
DEC 2013	5,998	6,451.2	1.0	17.9	17.3
JAN 2014	0.0	0.0	0.5	0	0
FEB 2014	0.0	0.0	0.4	0.7	0
MAR 2014	15,139	15,586.4	15.9	42.7	29.2
APR 2014	40,667	40,926.8	20.1	114.0	42.8
MAY 2014	22,477	22,721.3	20.4	64.7	45.5
JUN 2014	26,895	27,109.1	22.8	79.6	56.1
JUL 2014	38,034	38,268.3	9.2	110.4	97.8
AUG 2014	40,667	40,926.8	8.5	114.0	104.6
SEP 2014	16,042	16,298.8	1.3	49.6	49.8
Total	249,172	252,166.0	117.1	713.8	548.2

9. Pueblo Reservoir Water Year 2014 Operations

Fryingpan-Arkansas Project

Unit: 1,000 AF

Month	Inflow				Evap	Total Outflow	End of Month Content	Water Surface Elevation (feet msl)
	Project	Account	Native ²	Total				
OCT 2013	0.3	2.7	21.1	24.1	1.0	23.1	129.6	4,846.08
NOV 2013	0.8	5.0	19	24.8	0.5	14.9	139.0	4,849.21
DEC 2013	1.3	3.1	14.3	18.7	0.4	8.7	148.7	4,852.32
JAN 2014	1.2	3.0	12.5	16.7	0.3	8.4	156.6	4,854.77
FEB 2014	5.4	2.8	10.3	18.5	0.4	7.7	167.1	4,857.88
MAR 2014	13.8	6.3	12	32.1	1.0	12.1	186.0	4,863.21
APR 2014	12.3	8.1	19.3	39.7	1.5	29.1	195.1	4,865.64
MAY 2014	0.6	17.2	62.5	80.3	2.1	87.3	186.0	4,863.21
JUN 2014	0.9	7.4	167.2	175.5	3.0	171.1	187.4	4,863.59
JUL 2014	8.8	11.2	64.4	84.4	2.6	78.2	191.1	4,864.57
AUG 2014	3.1	6.0	35.6	44.7	2.3	53.1	180.4	4,861.67
SEP 2014	0.3	4.1	19.7	24.1	1.9	30.7	171.8	4,859.26
Total¹	48.9	38.8	496.0	583.7	17.0	524.4		

¹ Rounding may introduce discrepancies between monthly and yearly totals

² Native inflows are computed as total inflow less project inflow and account inflow

10. Reservoir Storage Allocation Data

Fryingpan-Arkansas Project

Unit: AF

Reservoir	Dead	Inactive	Active Conservation	Joint Use	Flood Control	Total Capacity Storage
Ruedi	63	1,095	101,278	0	0	102,373 ¹
Turquoise	2,810	8,920	120,478	0	0	129,398 ¹
Pueblo	2,329	28,121	228,828	66,000	26,991	349,940 ²
Twin Lakes	63,324	72,938	67,917	0	0	140,855 ³
Mt. Elbert Forebay	561	3825	7,318	0	0	11,143 ¹

¹ Area Capacity Table from 1984

² Area Capacity Table from 1994

³ The top of the active conservation pool at Twin Lakes corresponds to 140,855 AF. A tilted morning glory spillway reduces the actual storage available to 140,357 AF

Note: Inactive includes dead storage

11. Monthly Evaporation Factors

Fryingpan-Arkansas Project

Month	Ruedi	Turquoise	Twin Lakes	Pueblo
OCT	.053	.1217	.1217	.1366
NOV	0	.0566	.0566	.0886
DEC	0	.0171	.0171	.0735
JAN	0	.0274	.0274	.07078
FEB	0	.0497	.0497	.10592
MAR	0	.0771	.0771	.1548
APR	0	.1337	.1337	.176
MAY	.147	.2006	.2006	---
JUN	.3605	.2554	.2554	---
JUL	.3244	.2246	.2246	---
AUG	.2332	.1766	.1766	---
SEP	.1419	.1663	.1663	---

Note: These factors are used only when the pan is frozen.

Factor is derived from $((\text{the average monthly evaporation volume} * 12) / 0.7) / (\# \text{ days in month})$

Evaporation in AF = monthly factor * surface area of the lake * (1 - percent ice cover)

12. Monthly Evaporation

Fryingpan-Arkansas Project

Unit:AF

Month	Ruedi		Turquoise		Twin Lakes and Mt. Elbert		Pueblo	
	AVG	WY 2014	AVG	WY 2014	AVG	WY 2014	AVG	WY 2014
OCT 2013	46	86	372	368	690	482	954	953
NOV 2013	0	0	179	162	312	227	561	538
DEC 2013	0	0	14	6	30	10	438	375
JAN 2014	0	0	0	0	1	0	394	345
FEB 2014	0	0	0	0	2	0	524	377
MAR 2014	0	0	0	0	22	10	1,167	987
APR 2014	8	0	10	0	175	87	1,531	1,500
MAY 2014	153	172	235	76	1,085	776	1,973	2,106
JUN 2014	399	597	715	681	1,650	1,426	2,307	3,031
JUL 2014	388	581	677	505	1,524	879	2,269	2,575
AUG 2014	268	410	507	440	1,103	822	1,754	2,297
SEP 2014	166	229	499	440	980	750	1,406	1,916

13. Monthly Precipitation

Fryingpan-Arkansas Project
Unit:Inches

MONTH	MEREDITH NEAR RUEDI		TURQUOISE		TWIN LAKES		PUEBLO	
	AVG	WY 2014	AVG	WY 2014	AVG	WY 2014	AVG	WY 2014
OCT 2013	1.08	0.84	1.14	0.31	0.87	0.18	0.87	0.51
NOV 2013	1.12	1.11	1.16	1.16	0.44	0.65	0.36	0.45
DEC 2013	1.14	0.88	1.29	1.03	0.41	0.26	0.32	0.05
JAN 2014	1.29	0.92	1.60	2.0	0.45	0.44	0.31	0.36
FEB 2014	1.44	0.22	1.54	5.58	0.50	0.81	0.35	0.38
MAR 2014	1.25	0.91	1.36	2.02	0.61	0.77	0.81	0.62
APR 2014	1.56	0.26	1.66	0.77	0.74	0.40	1.72	1.58
MAY 2014	2.16	0.83	1.43	1.65	0.87	0.96	1.16	0.97
JUN 2014	1.89	0.04	0.89	0.32	0.76	0.24	0.82	0.45
JUL 2014	1.42	1.90	2.14	3.08	1.94	2.59	1.76	2.19
AUG 2014	1.14	1.28	2.14	2.33	1.60	1.25	2.37	1.73
SEP 2014	1.31	1.36	1.60	1.50	1.21	1.42	0.74	0.40
TOTAL	16.80	10.55	17.95	21.75	10.40	9.97	11.59	9.69
Max. Annual	26.70	(1984)	25.95	(1957)	17.27	(1952)	20.32	(2007)

¹The USGS weather station at Ruedi was out of service for WY2014. The precipitation totals from Meredith have been substituted

14. Flood Control Benefits
Fryingpan-Arkansas Project

WY	Ruedi Benefits WY2014	Ruedi Benefits Cumulative	Pueblo Benefits WY2014	Pueblo Benefits Cumulative
1976			\$320,000	\$320,000
1979			\$90,000	\$410,000
1980			\$86,000	\$496,000
1981			\$111,000	\$607,000
1982			\$836,000	\$1,443,000
1983	\$80,000	\$80,000	\$47,000	\$1,490,000
1984	\$330,000	\$410,000	\$1,039,000	\$2,529,000
1985	\$91,000	\$501,000	\$234,000	\$2,763,000
1986	\$70,000	\$571,000	\$0	\$2,763,000
1987	\$0	\$571,000	\$90,000	\$2,853,000
1988	\$0	\$571,000	\$0	\$2,853,000
1989	\$0	\$571,000	\$0	\$2,853,000
1990	\$0	\$571,000	\$0	\$2,853,000
1991	\$0	\$571,000	\$482,000	\$3,335,000
1992	\$0	\$571,000	\$266,000	\$3,601,000
1993	\$4,000	\$575,000	\$496,000	\$4,097,000
1994	\$280,000	\$855,000	\$290,000	\$4,387,000
1995	\$1,770,000	\$2,625,000	\$832,000	\$5,219,000
1996	\$1,550,000	\$4,175,000	\$0	\$5,219,000
1997	\$1,207,000	\$5,382,000	\$320,200	\$6,539,200
1998	\$0	\$5,382,000	\$0	\$6,539,200
1999	\$116,000	\$5,498,000	\$4,778,000	\$11,317,200
2000	\$1,061,000	\$6,559,000	\$0	\$11,317,200
2001	\$0	\$6,559,000	\$0	\$11,317,200
2002	\$0	\$6,559,000	\$0	\$11,317,200
2003	\$1,515,100	\$8,074,100	\$0	\$11,317,200
2004	\$0	\$8,074,100	\$0	\$11,317,200
2005	\$970,200	\$9,044,300	\$0	\$11,317,200
2006	\$799,000	\$9,843,300	\$20,159,000	\$31,476,200
2007	\$103,000	\$9,946,300	\$0	\$31,476,200
2008	\$1,635,000	\$11,581,300	\$0	\$31,476,200
2009	\$740,100	\$12,321,400	\$0	\$31,476,200
2010	\$2,993,000	\$15,314,400	\$0	\$31,476,200

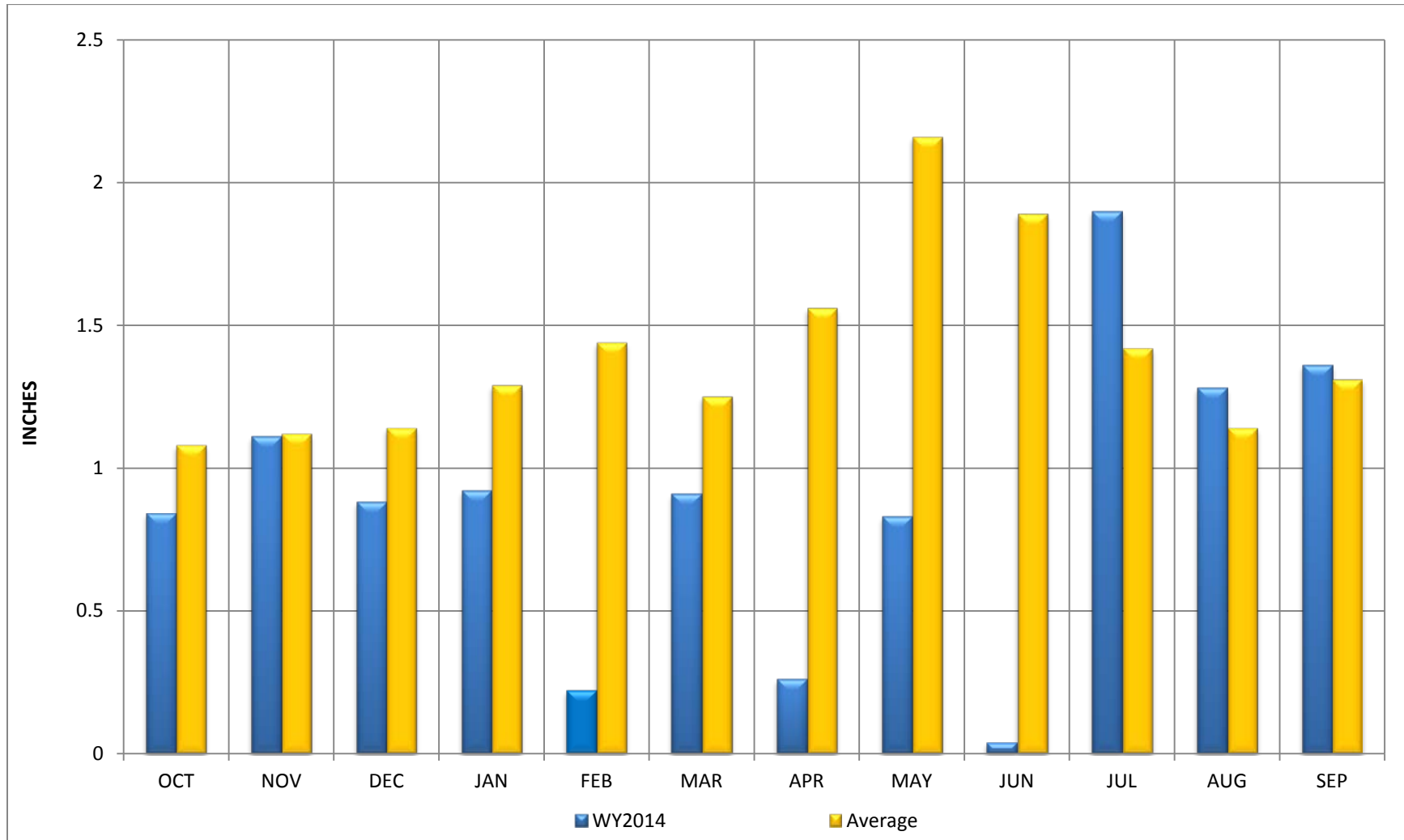
14. Flood Control Benefits (Continued)

Fryingpan-Arkansas Project

WY	Ruedi Benefits WY2014	Ruedi Benefits Cumulative	Pueblo Benefits WY2014	Pueblo Benefits Cumulative
2011	\$3,002,000	\$18,316,400	\$0	\$31,476,200
2012	\$0	\$18,316,400	\$0	\$31,476,200
2013	\$0	\$18,316,400	\$383,900	\$31,860,100
2014	\$0	\$18,316,400	\$431,900	\$32,292,000

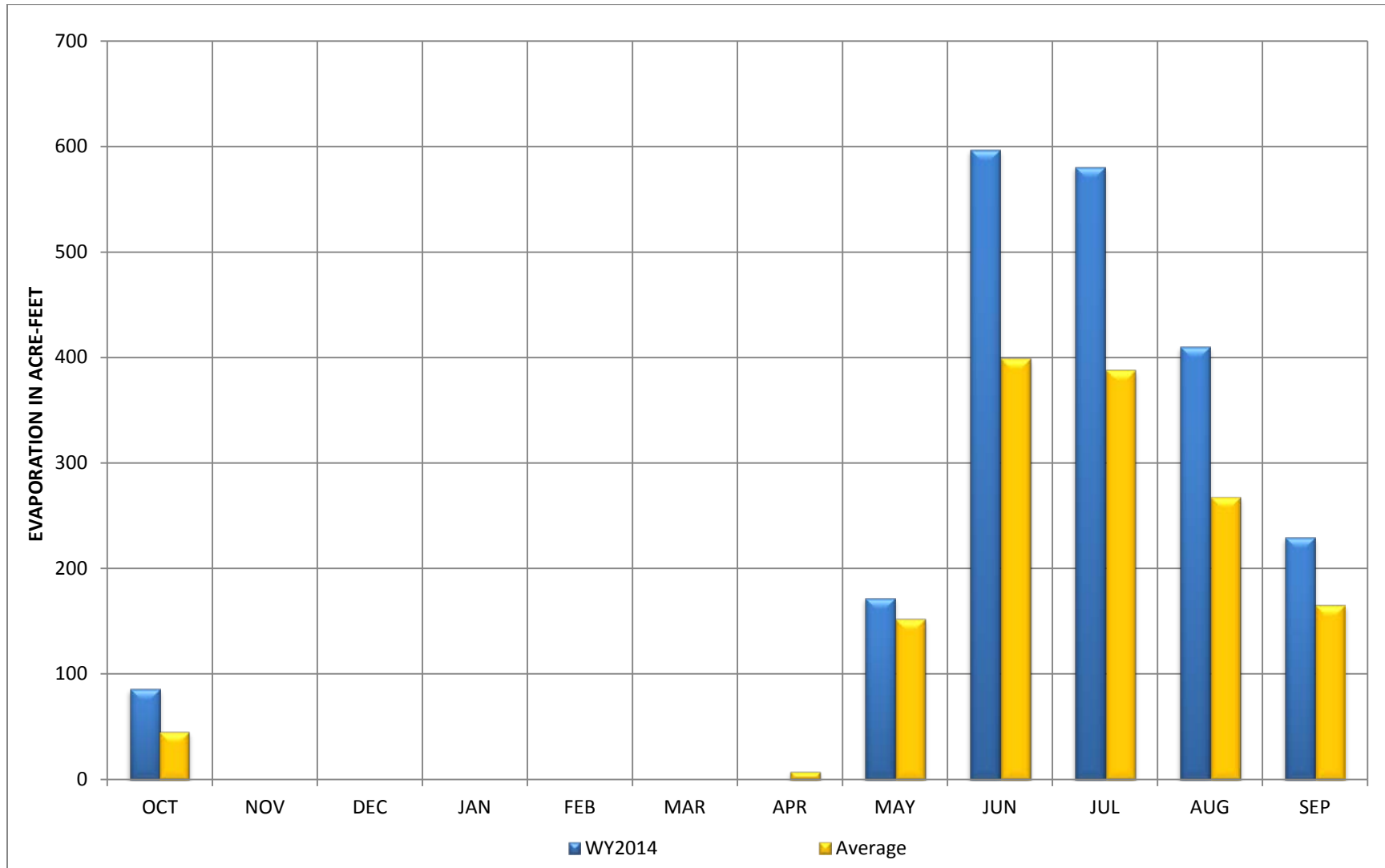
APPENDIX B: EXHIBITS

1. Meredith CO Monthly Precipitation WY2014

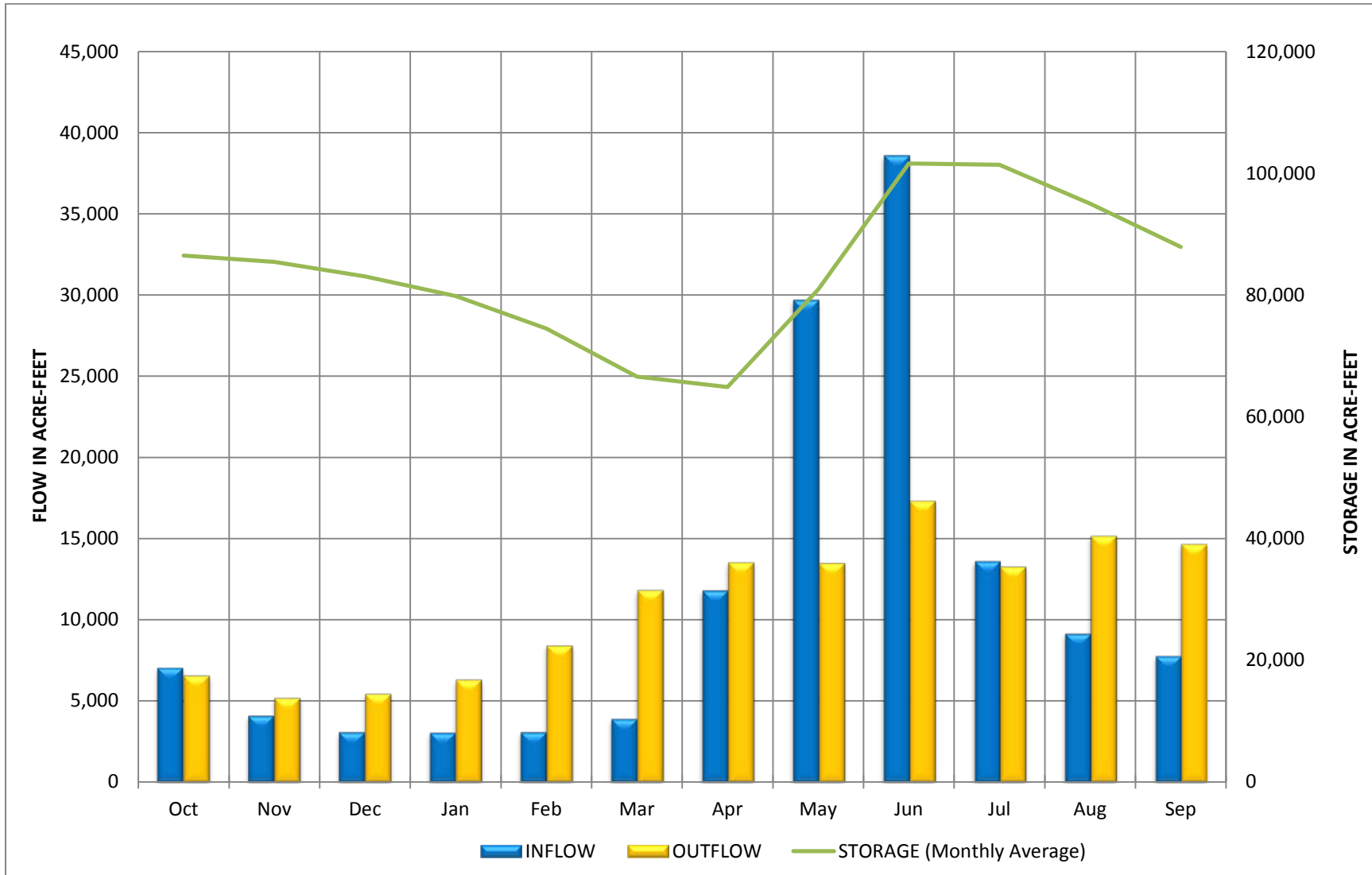


The weather station at Ruedi was out of service for the year. These precipitation values are from the nearby gage at Meredith

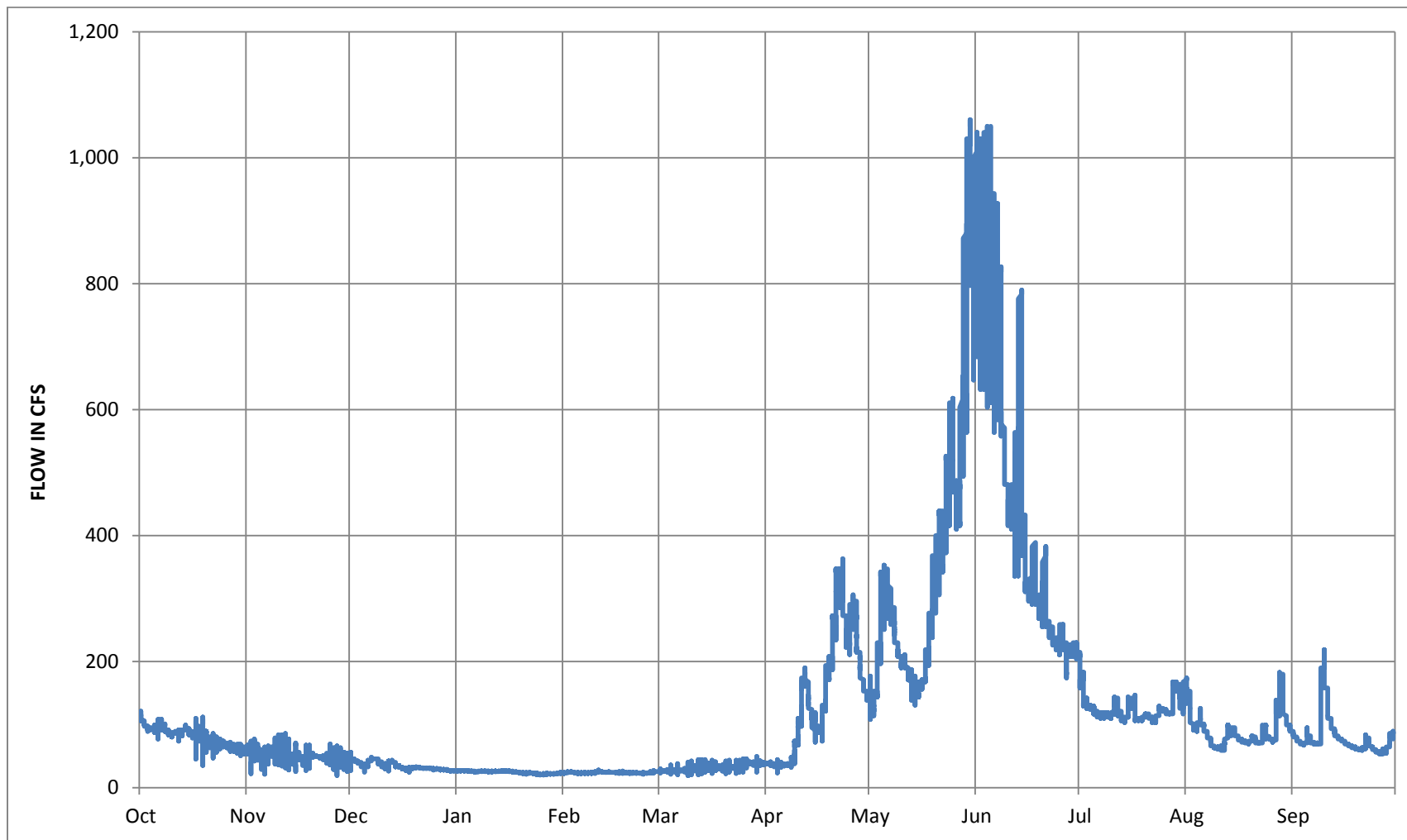
2. Ruedi Reservoir Monthly Evaporation WY2014



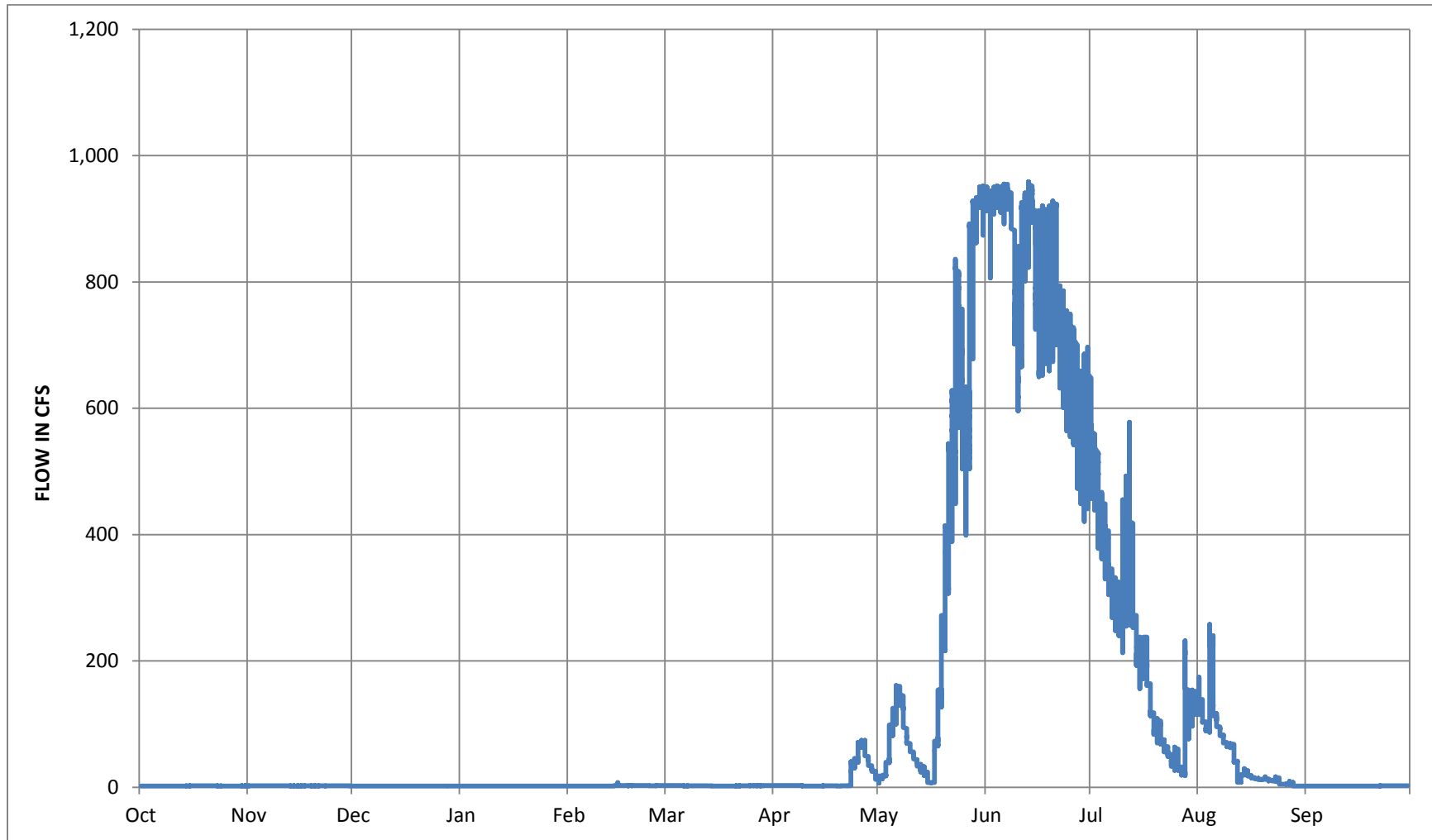
3. Ruedi Reservoir Actual Operations WY2014



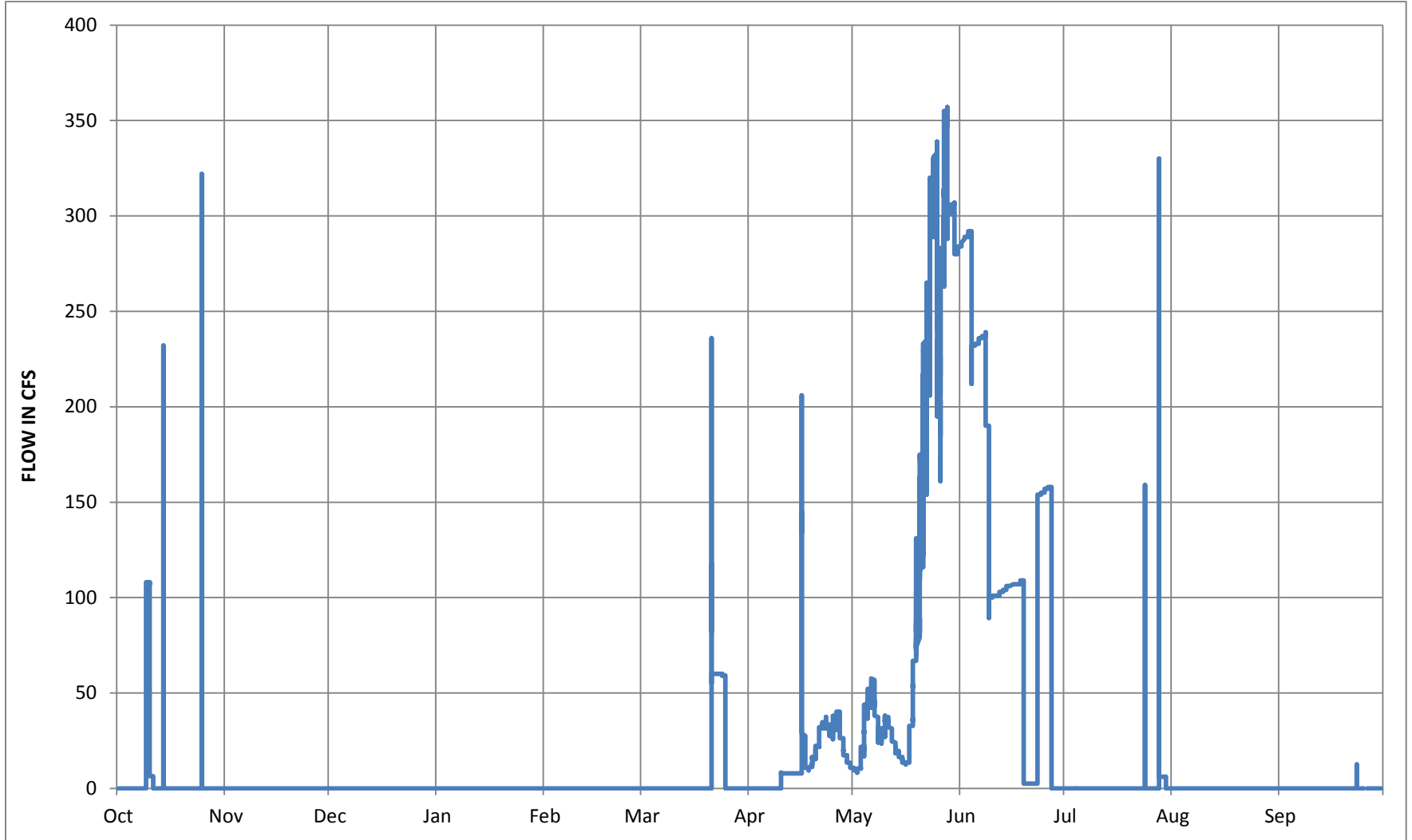
4. Fryingspan River near Thomasville Daily Discharge WY2014



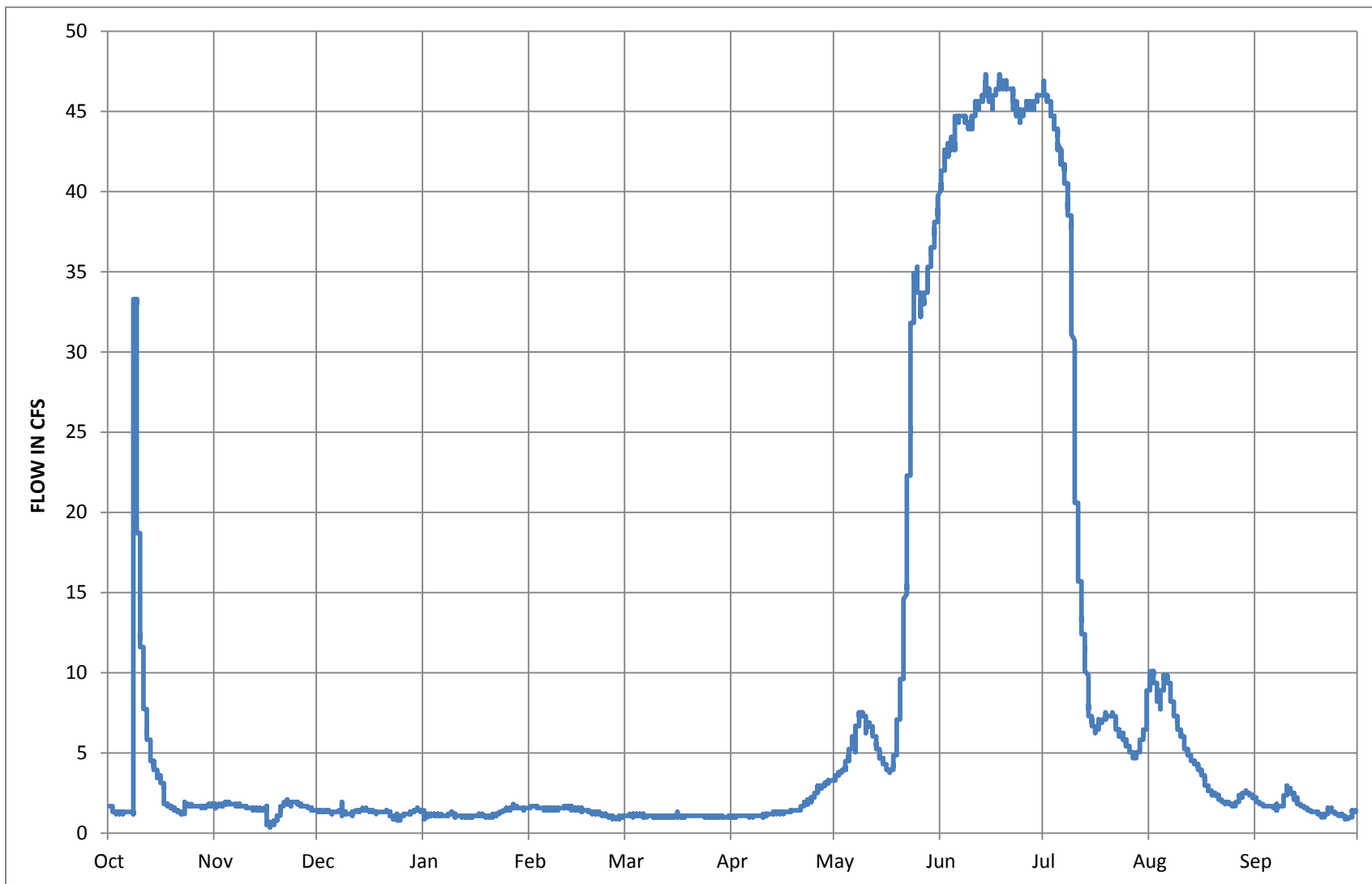
5. Boustead Tunnel Actual Operations WY2014



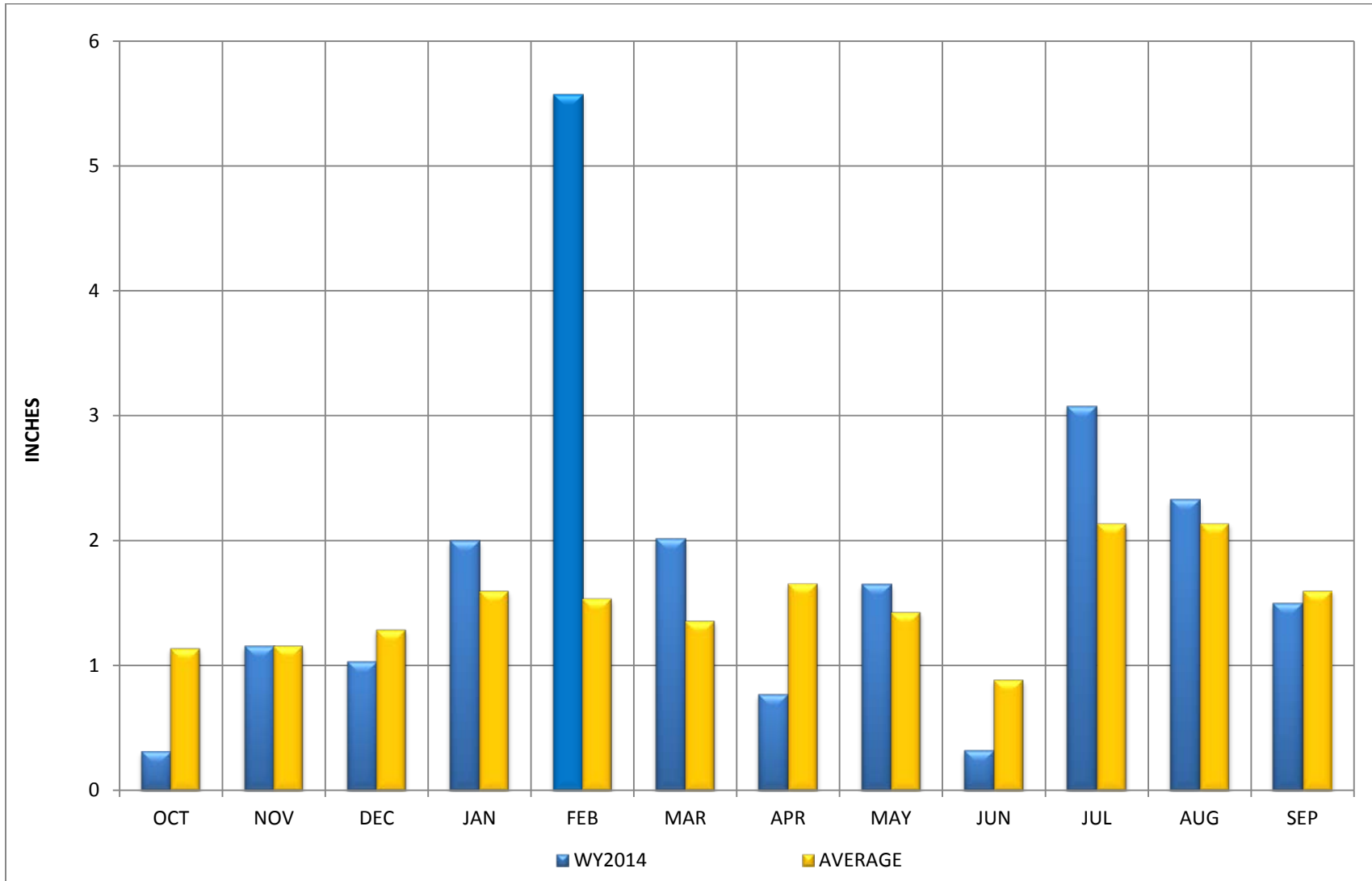
6. Homestake Tunnel Actual Operations WY2014



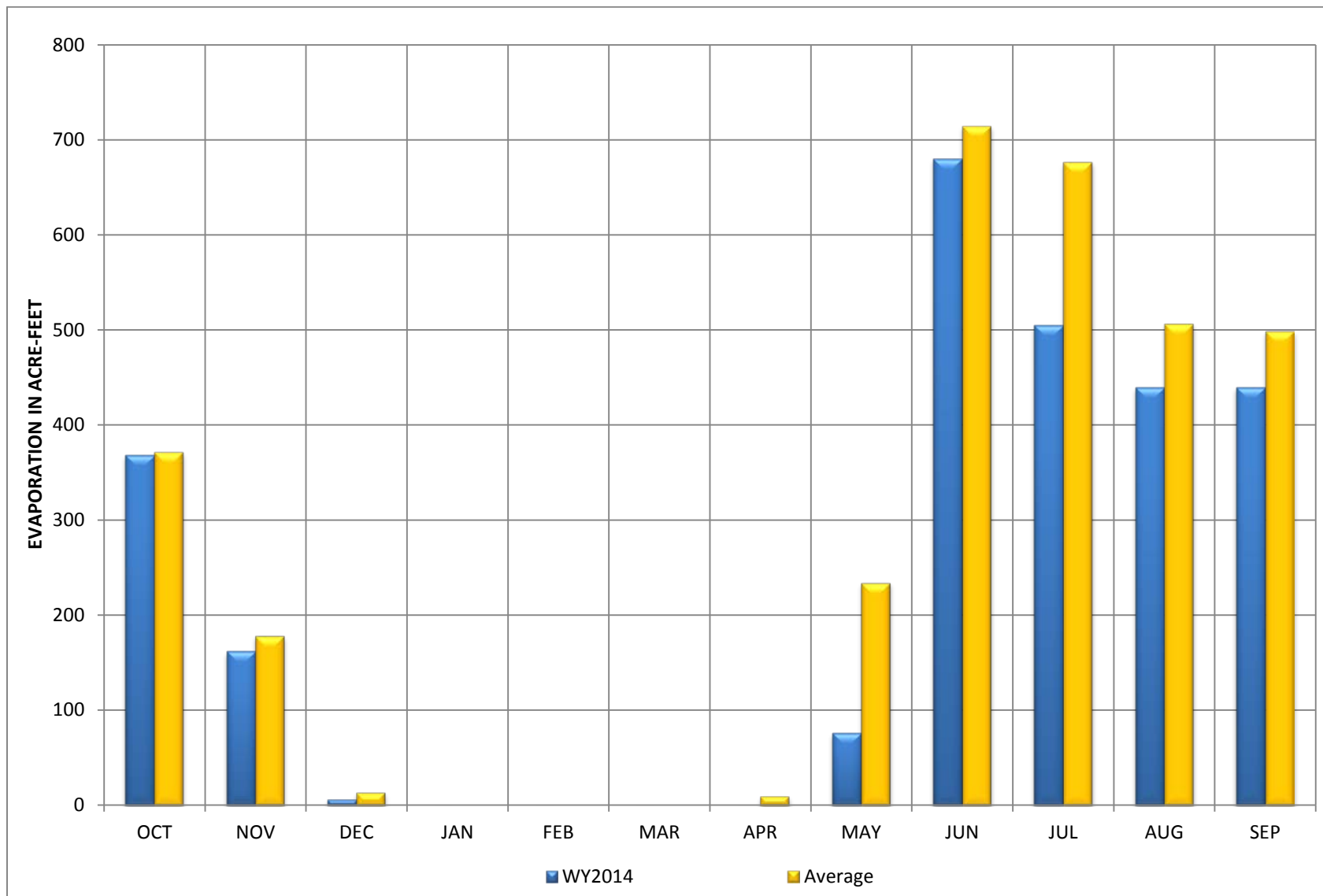
7. Busk-Ivanhoe Tunnel Actual Operations WY2014



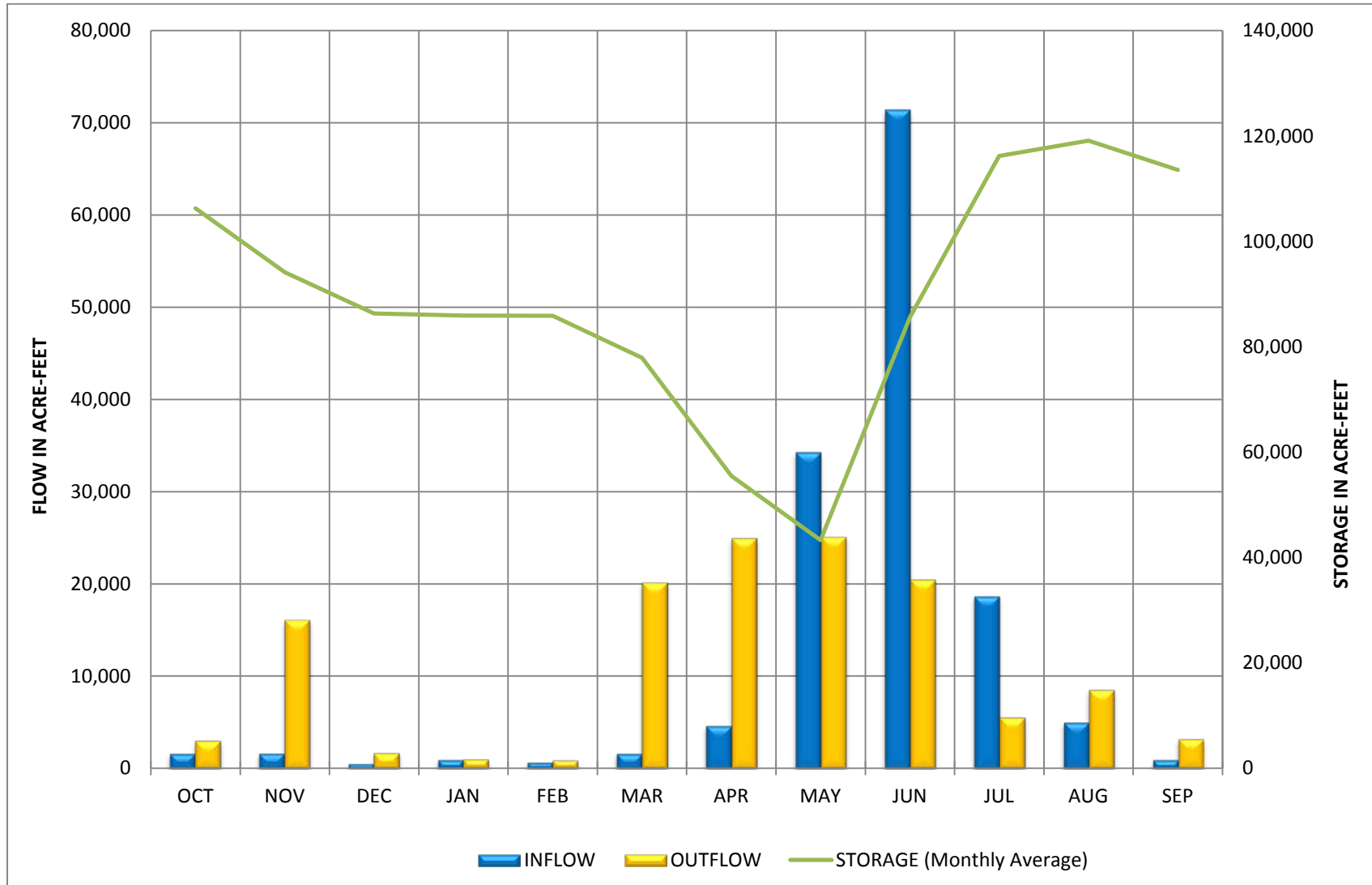
8. Turquoise Lake (Sugar Loaf Dam) Monthly Precipitation WY2014



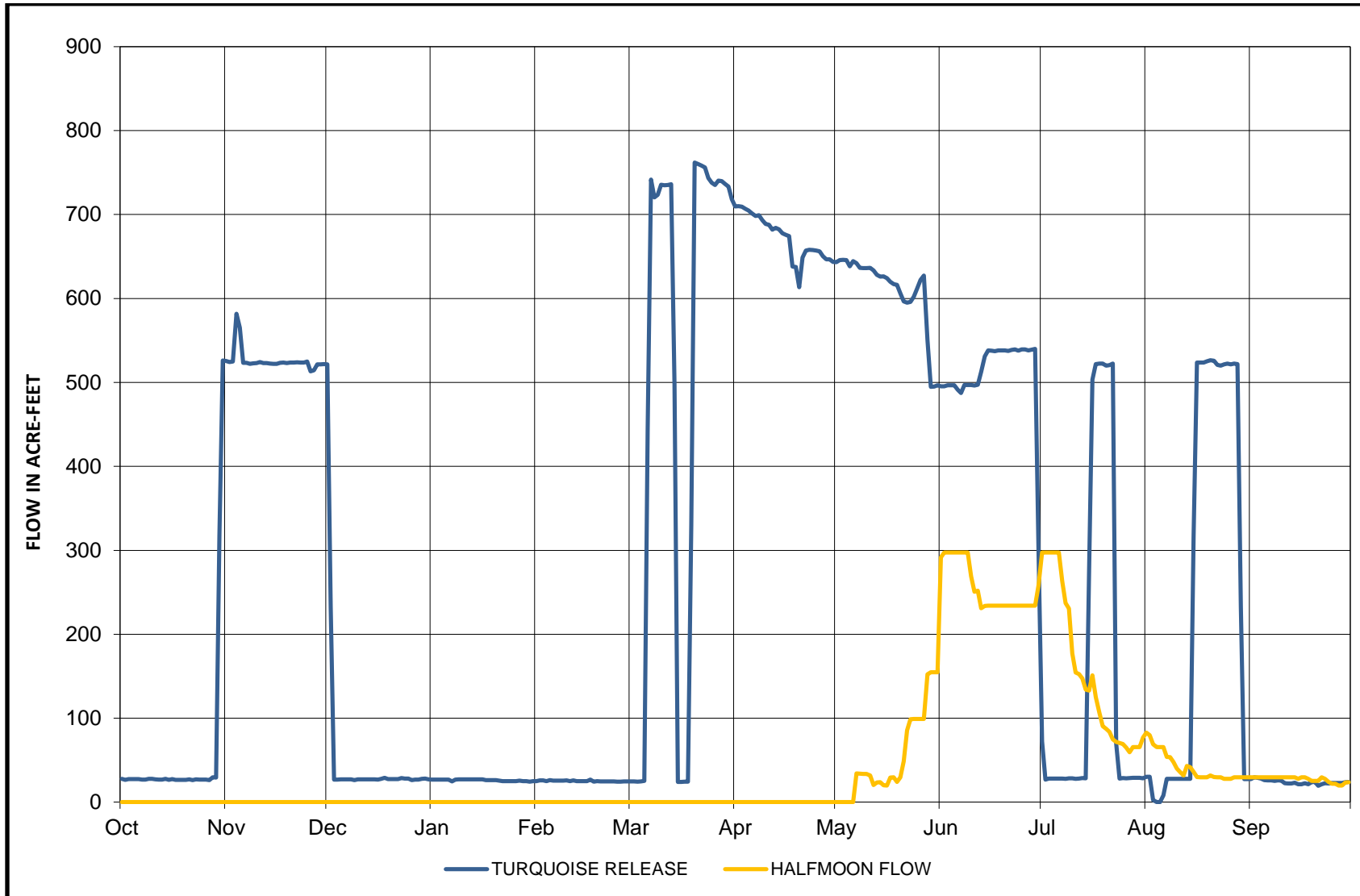
9. Turquoise Lake (Sugar Loaf Dam) Monthly Evaporation WY2014



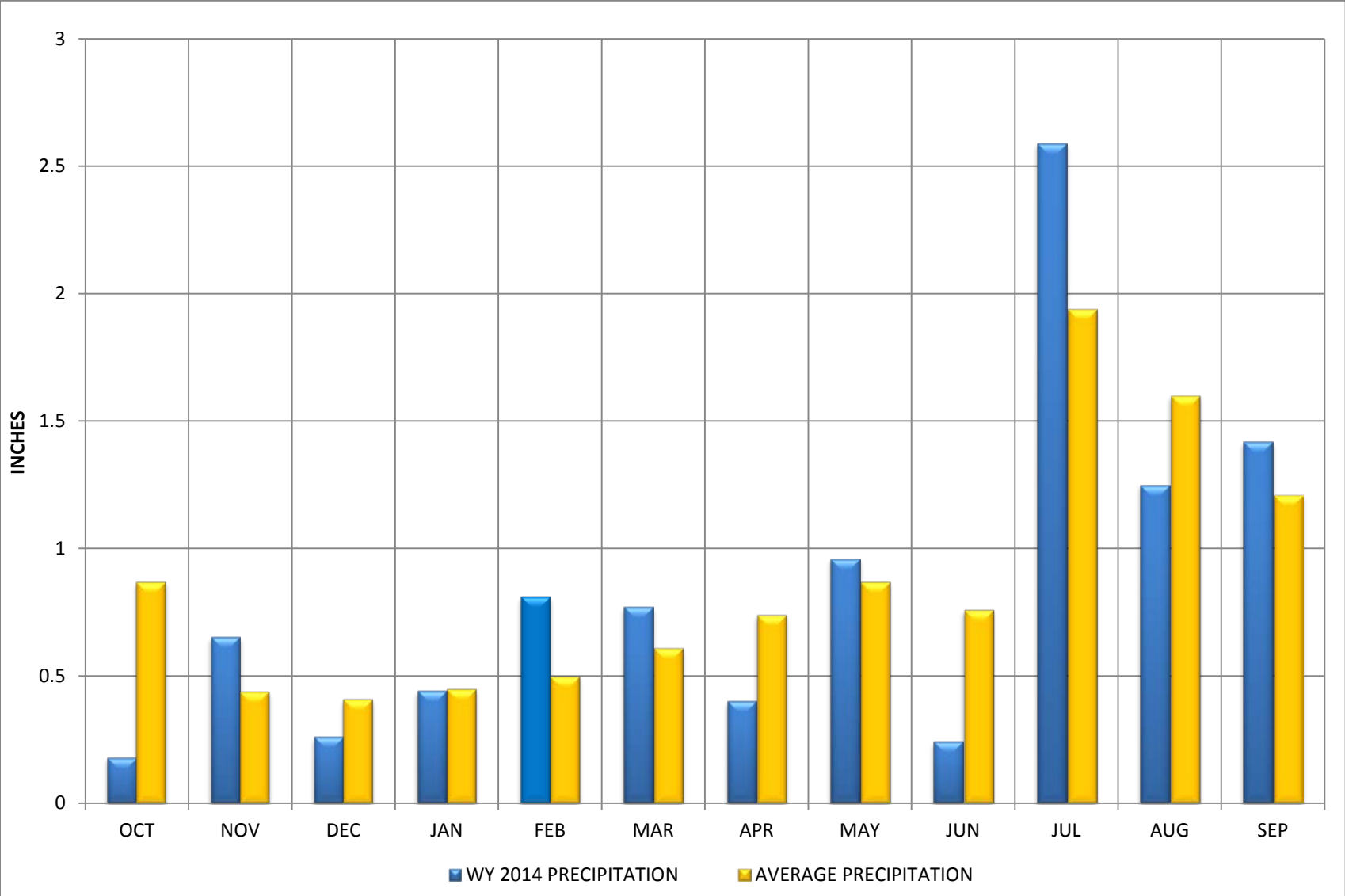
10. Turquoise Lake (Sugarloaf Dam) Actual Operations WY2014



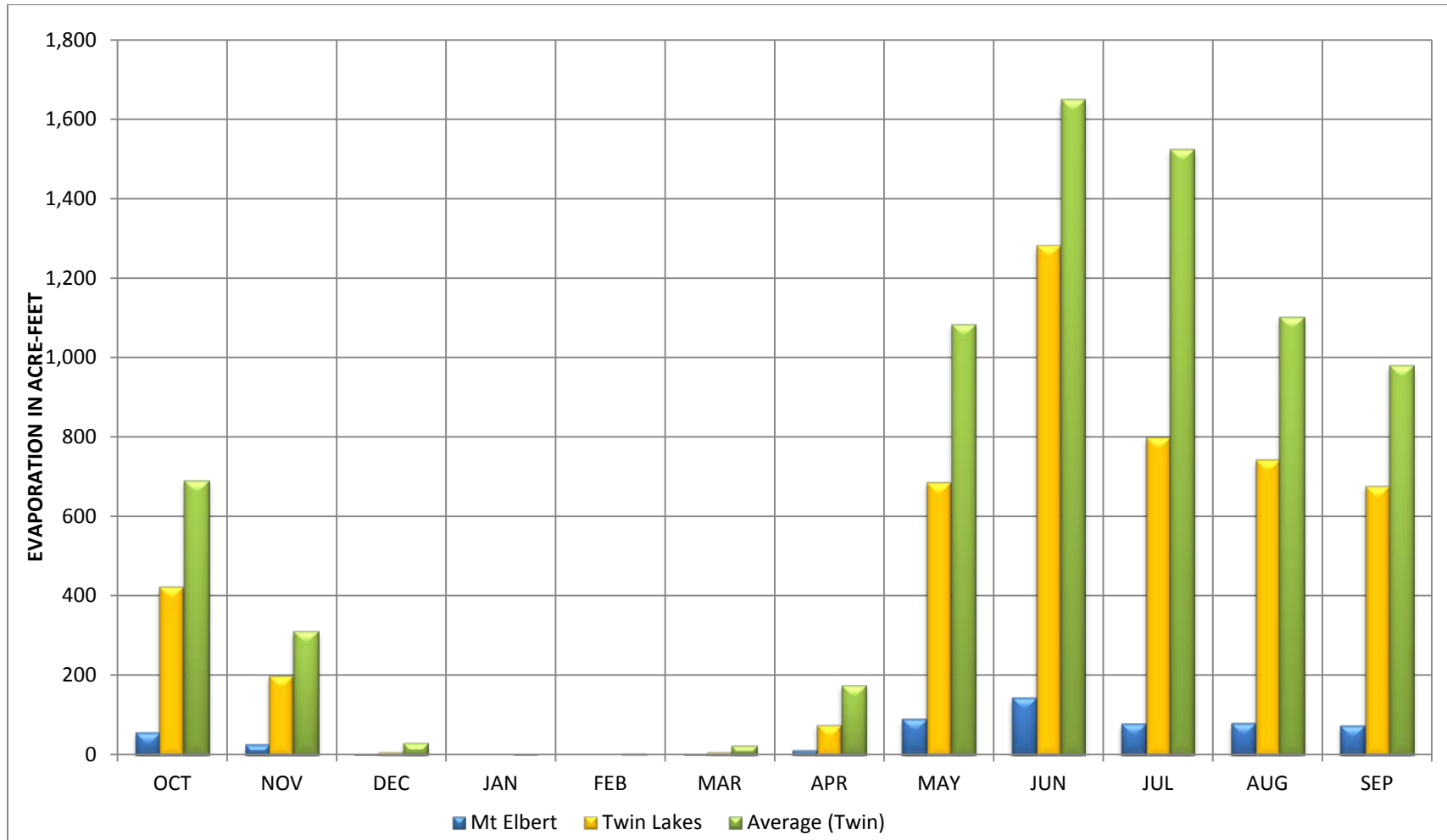
11. Mt. Elbert Conduit Inflow Actual Operations WY2014



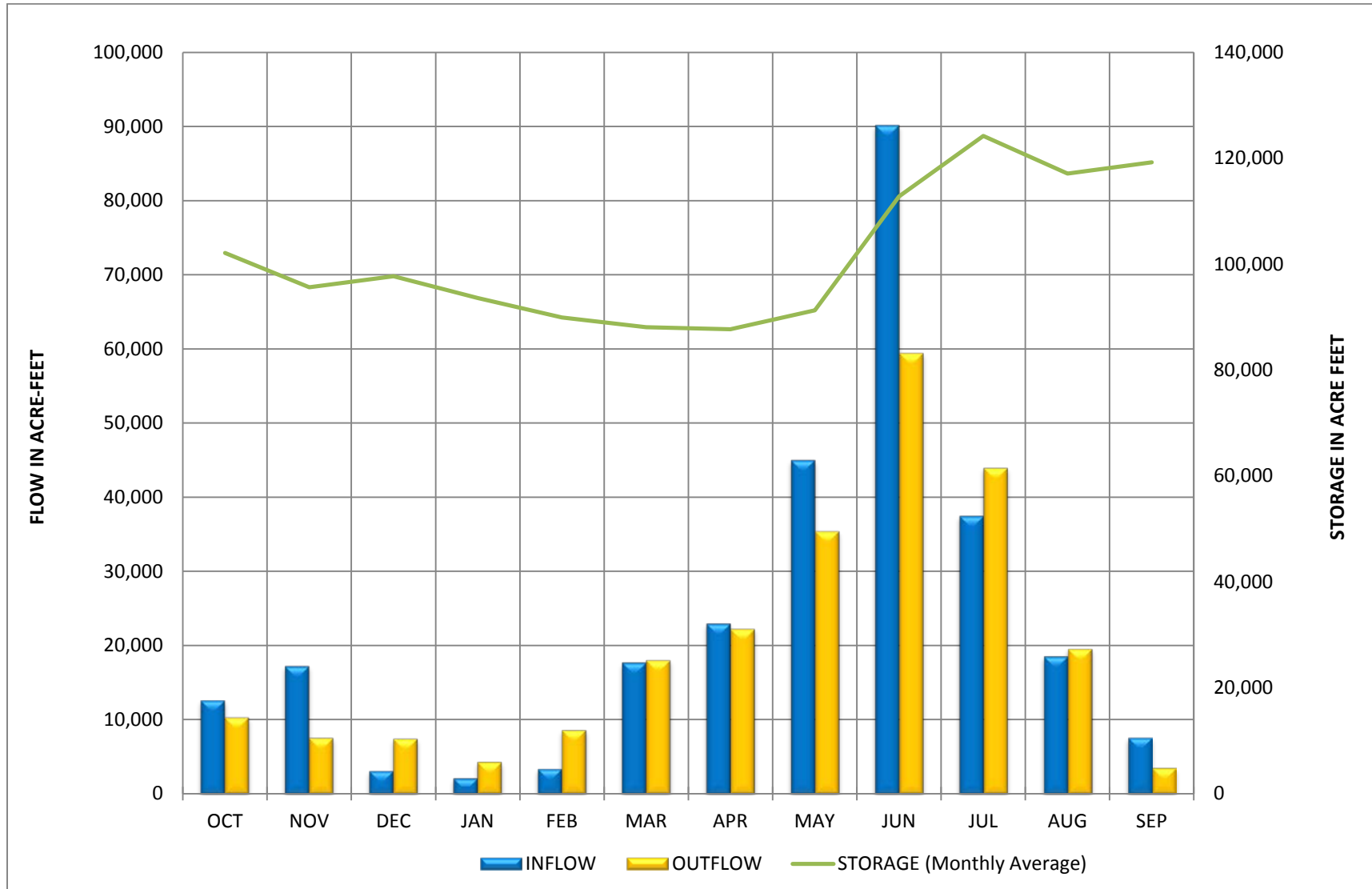
12. Twin Lakes Monthly Precipitation WY2014



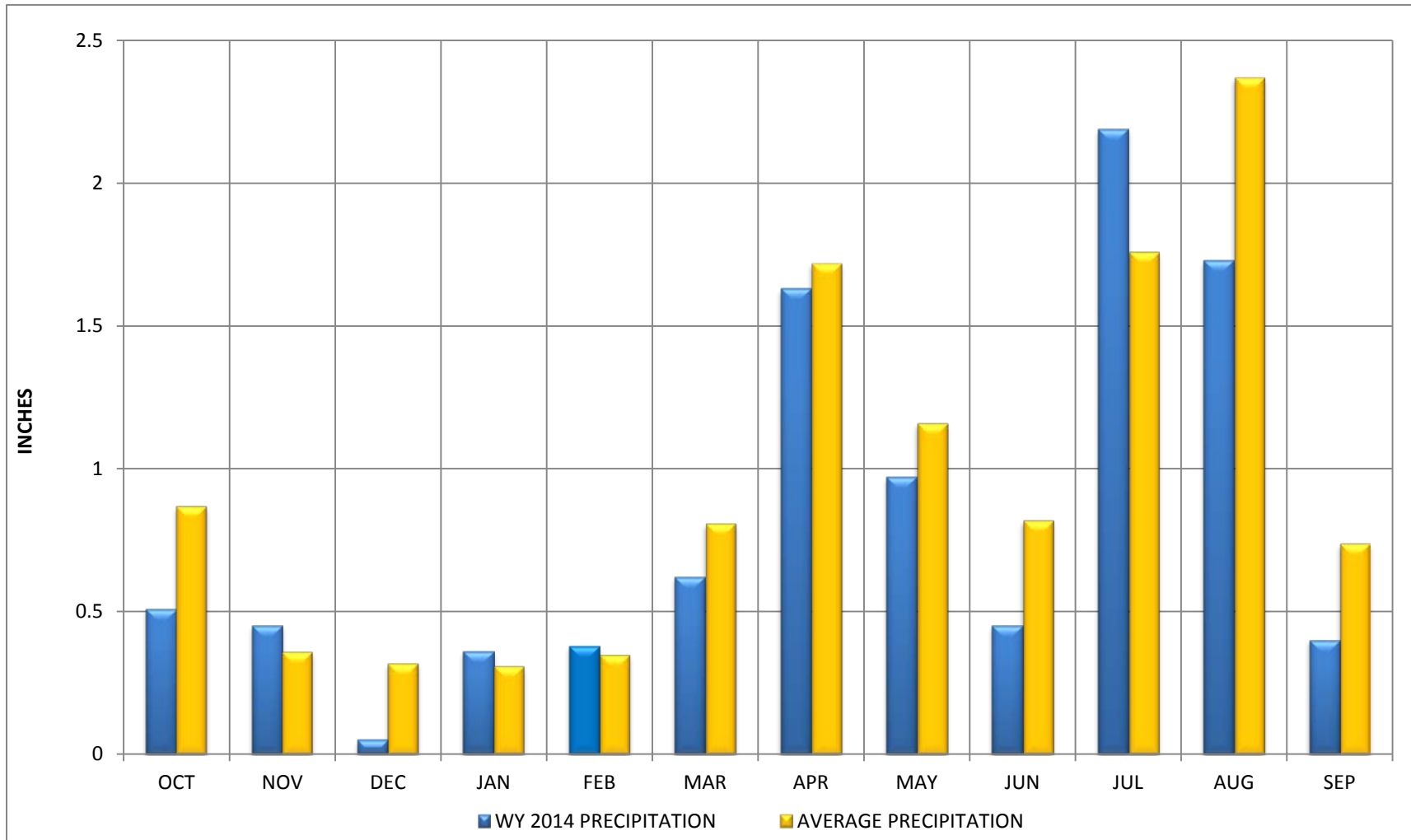
13. Twin Lakes Dam and Mt. Elbert Forebay Monthly Evaporation WY2014



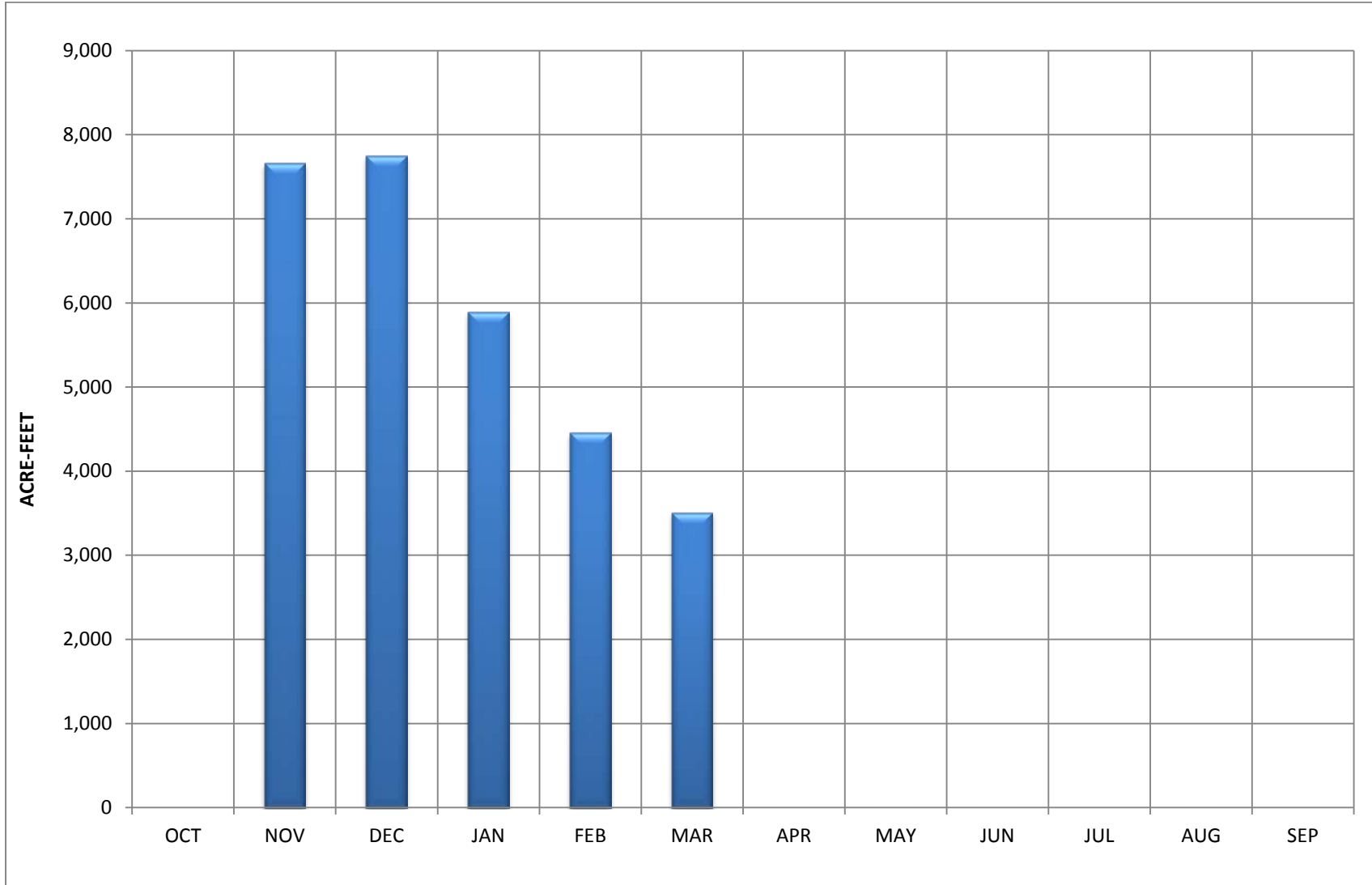
14. Twin Lakes/Mt. Elbert Forebay Actual Operations WY2014



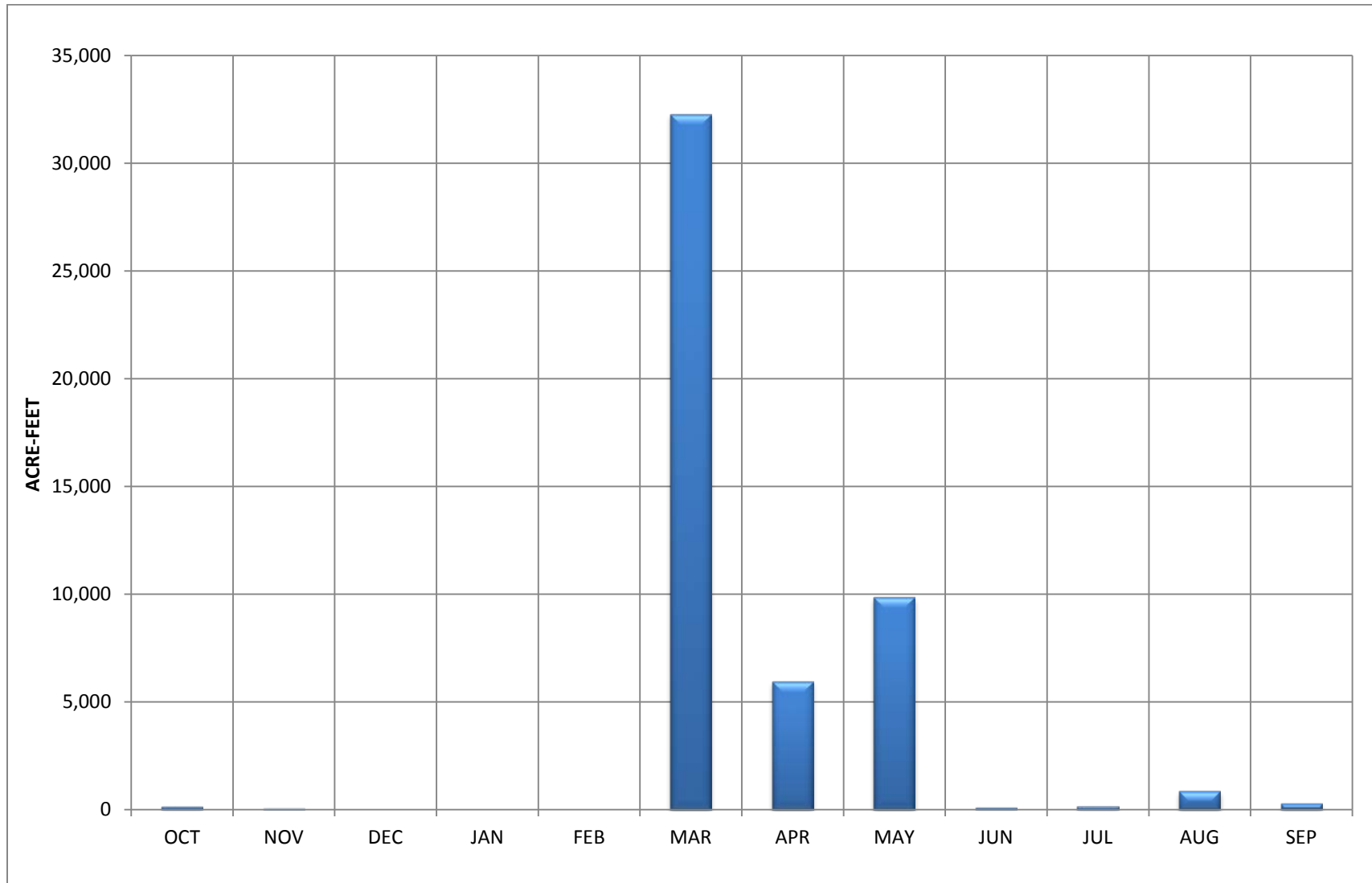
15. Pueblo Dam Monthly Precipitation WY2014



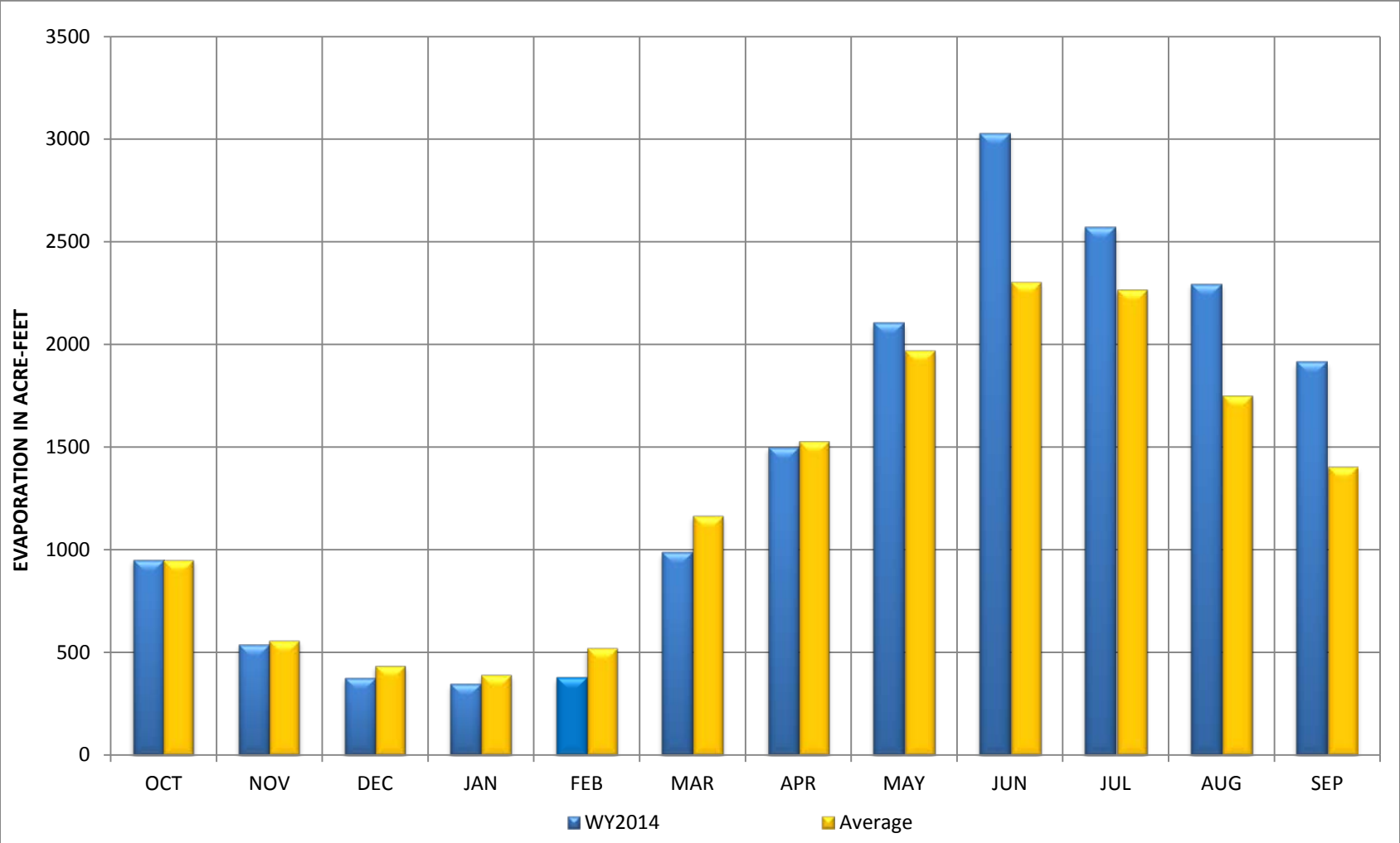
16. Pueblo Reservoir Winter Water Inflow WY2014



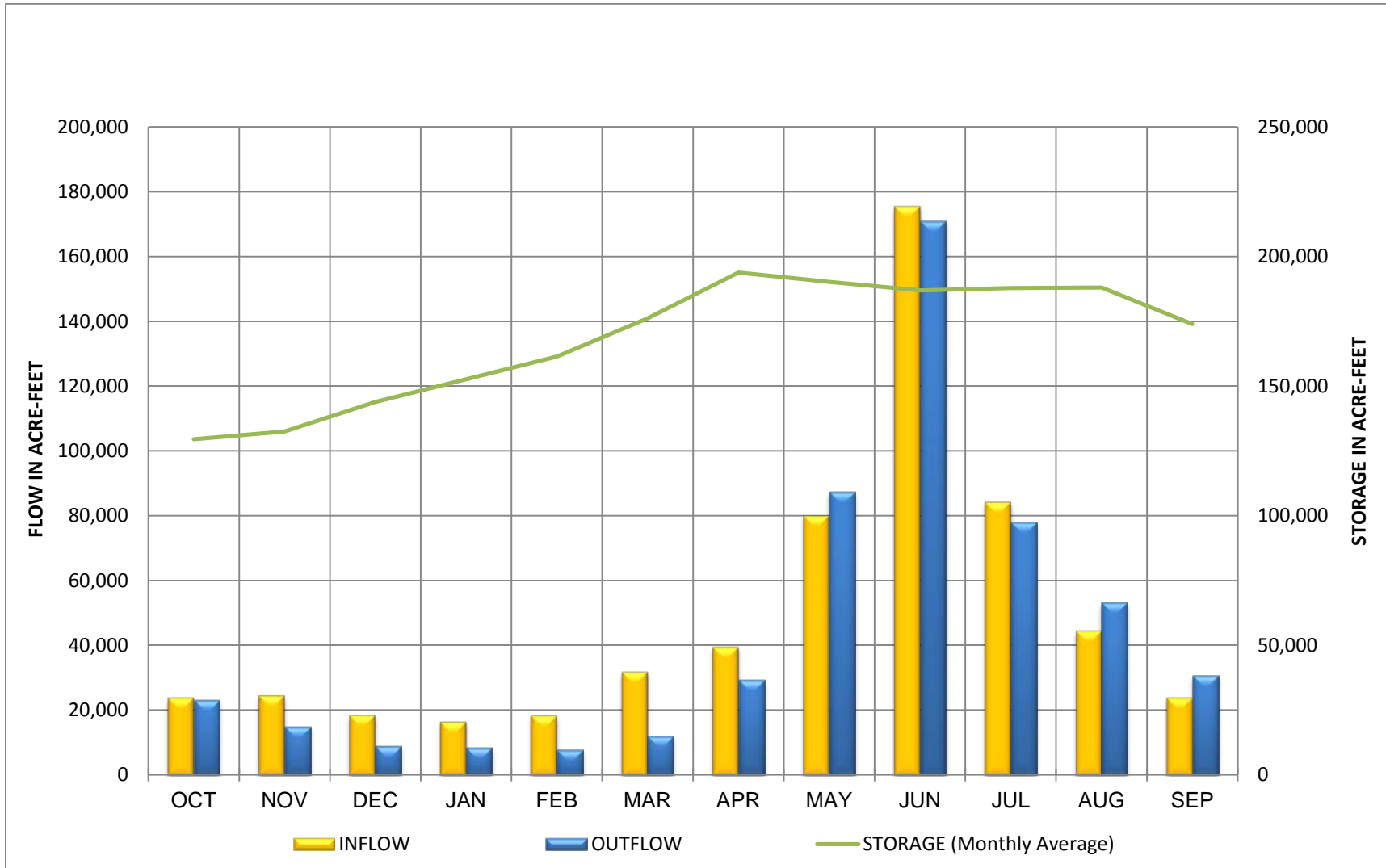
17. Releases of Pueblo Reservoir Winter Water WY2014



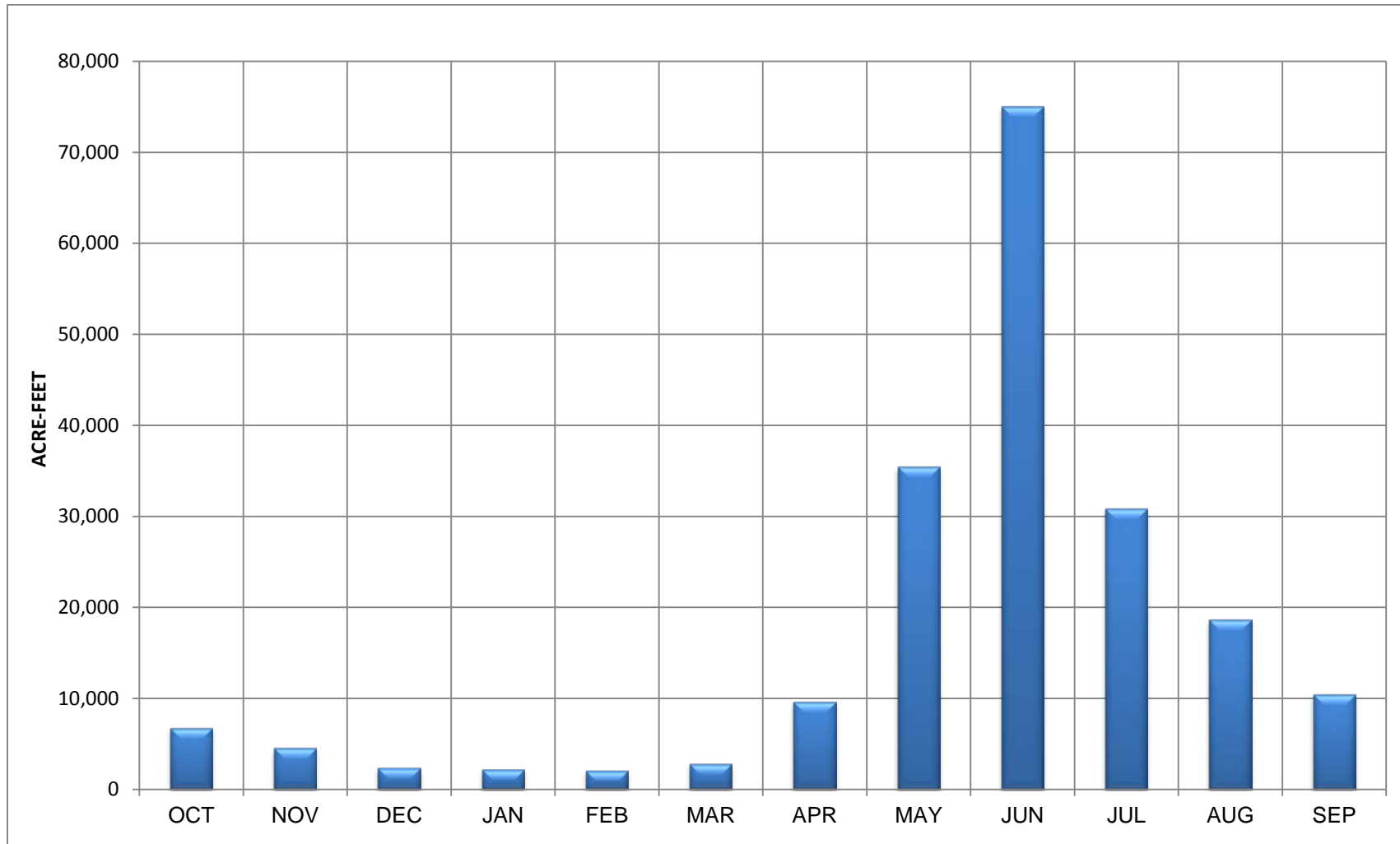
18. Pueblo Dam Monthly Evaporation WY2014



19. Pueblo Reservoir Actual Operations WY2014



20. Releases of Fryingpan-Arkansas Project Water WY2014



APPENDIX C:

**TWIN LAKES RESERVOIR
AND CANAL COMPANY
EXCHANGE WITH
FRYINGPAN ARKANSAS
PROJECT WATER**

Twin Lakes Canal Company Exchange with Fryingpan-Arkansas Project Water WY2014

Units = AF

	Lincoln Creek below Grizzly Reservoir (1)	Roaring Fork River above Lost Man (2)	Total Exchanged (3)	Twin Lakes Storage (3) x 0.9913 ¹
Oct 2013	160.66	0	160.66	159.25
Nov 2013	154.89	0	154.89	153.56
Dec 2013	163.09	0	163.09	156.38
Jan 2014	180.06	0	180.06	178.86
Feb 2014	161.4	0	161.4	160
Mar 2014	182.45	0	182.45	180.9
Apr 2014	168.39	0	168.39	166.94
May 2014	165.84	0	165.84	164.56
Jun 2014	210.67	217.8	428.47	424.88
Jul 2014	226.51	220.93	447.44	443.64
Aug 2014	230.68	167.44	398.12	394.67
Sep 2014	222.12	157.18	379.3	374.62
Total	2226.76	763.35	2990.11	2958.26

¹ Transit loss from the outlet of Twin Lakes Tunnel to Twin Lakes normally taken on all Twin Lakes Reservoir and Canal Company imported water.

² Operating Criteria may prevent the total 3000 x 0.9913 from being stored

Operating Criteria

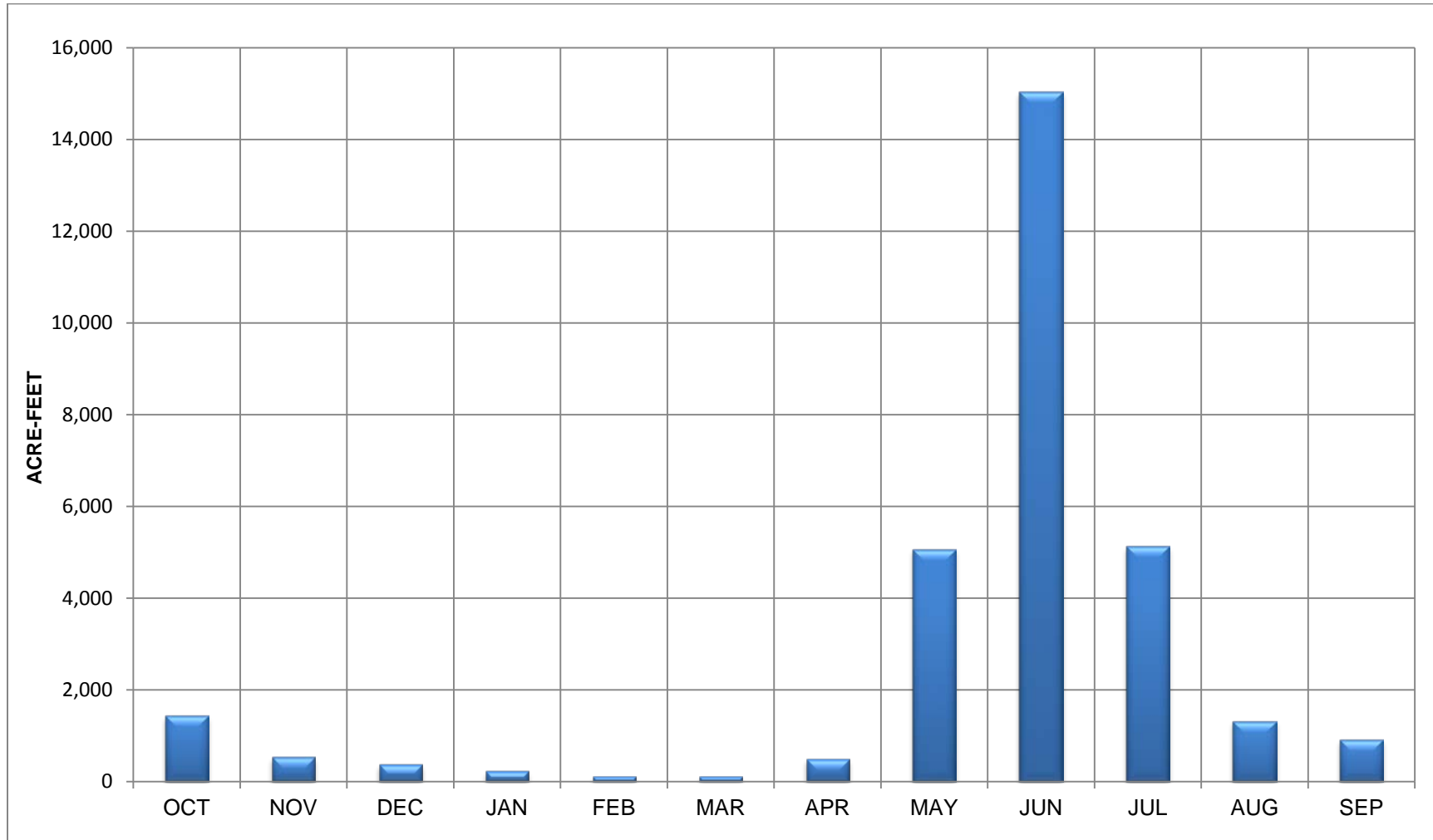
1. The water exchange will be implemented October 1 through September 30.
2. The releases to the Roaring Fork River at the Roaring Fork Diversion Dam and Lincoln Creek at the Grizzly Diversion Dam shall be accounted as follows¹:

Month	Grizzly Diversion (cfs)	Roaring Fork Diversion (cfs)
October	3.0	0.0
November	3.0	0.0
December	3.0	0.0
January	3.0	0.0
February	3.0	0.0
March	3.0	0.0
April	3.0	0.0
May	3.0	0.0
June	4.0	4.0
July	4.0	4.0
August	4.0	3.0
September	4.0*	3.0

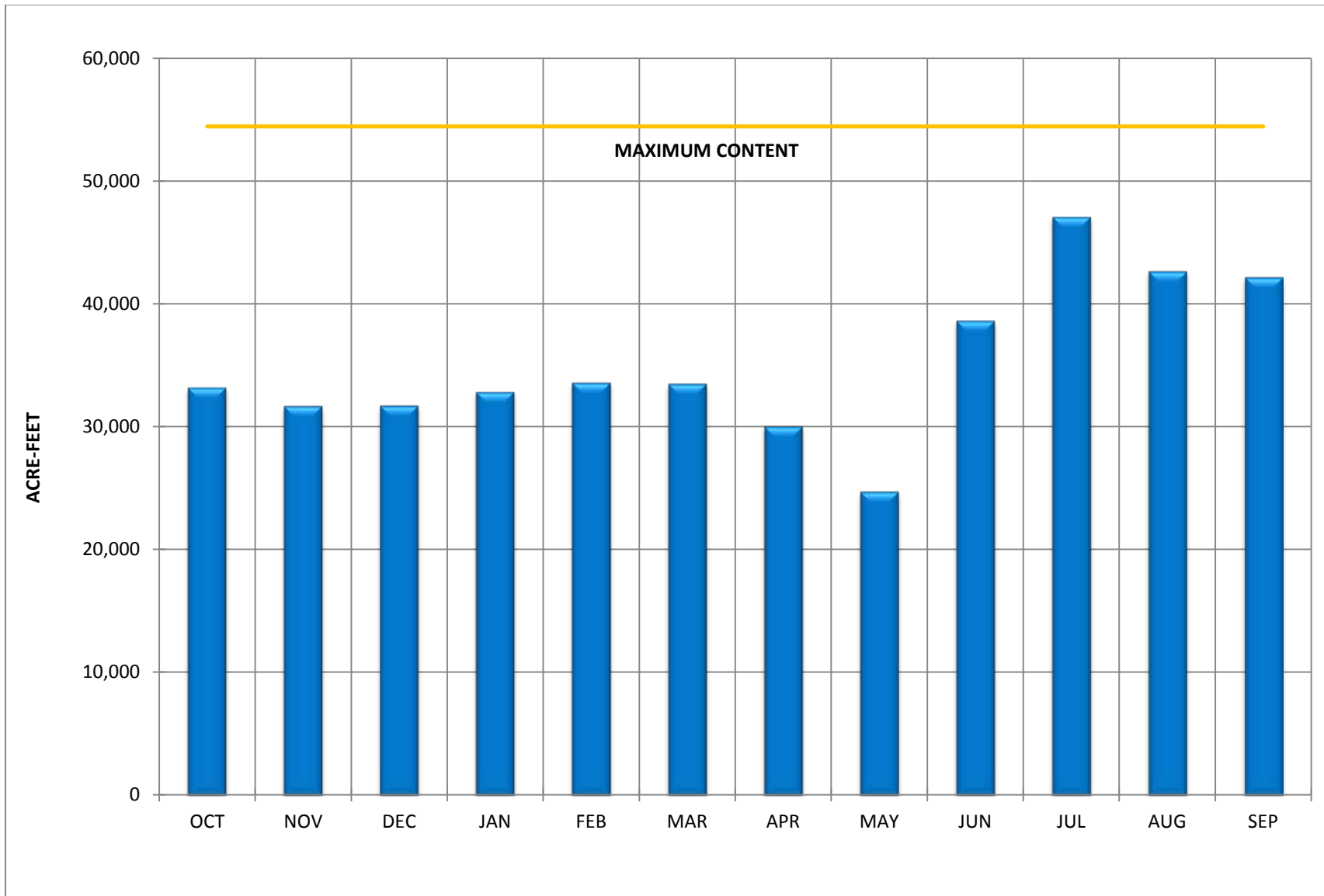
*On 24 September 2014, Twin Lakes Reservoir and Canal Company began to forego up to 6 cfs on Lincoln Creek .

3. At any time the Twin Lakes Reservoir and Canal Company (Company) is bypassing water, in addition to that designated above, it will be assumed that the Company could not have diverted that water and will not receive any credit for exchange in excess of the above amounts.
4. In the event less water than the above amounts is bypassed, only the amount actually bypassed will be credited.
5. The total volume of the release at both gages combined shall not exceed 3,000 AF in any one water year.
6. No credit for exchange will be made on days when there is no documentation of such bypasses.
7. No credit will be given for water bypassed when diversions are called out by the State Engineer.

Twin Lake Tunnel Imports WY2014



Twin Lakes Canal Company Storage WY2014



APPENDIX D:

DAILY DISCHARGE RECORDS, FRYINGPAN- ARKANSAS PROJECT COLLECTION SYSTEM

Carter Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0	46.5	36.3		
2		0	42.5	31.7		
3		.8	41.9	27.4		
4		5.4	39.6	23.5		
5		8.7	40.8	24.6		
6		10	40.4	23.4		
7		9.1	40.3	19.1		
8		6.7	37.1	20.5		
9		3	27.1	20.8		
10		1.5	26.6	19.7		
11		.6	31.1	22.6		
12		.1	37.2	22.1		
13		0	41.5	20.9		
14		0	42.4	19.3		
15		0	29	19.3		
16		0	28.2	21.3		
17		.3	36.7	17		
18		3.4	38.4	12.7		
19		9.4	33.5	10.7		
20		15.4	38.9	10.5		
21		20.6	36.7	11.5		
22		25.8	29.3	10.4		
23	3	30.8	30.1	6.2		
24	2.8	34.3	29.4	0		
25	2.8	30.8	34.5	0		
26	4.8	25.9	37.6	0		
27	3.6	36.3	35.9	0		
28	1.1	45.8	35	0		
29	0	44.3	38.9	0		
30	0	44.9	42.8	0		
31		44.2				
TOTAL	18	458.1	1089.7	451.6		
AVERAGE	2.3	14.8	36.3	14.6		
MAX	4.8	45.8	46.5	36.3		

WY2014 Total: 4,001.5 AF

Maximum Instantaneous Peak: 59.8 cfs on 28-MAY-14

Blank: Recorder not operated. No water diverted

M: Missing Data

North Fork Fryingpan River Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1	1		0	20.6	11.6	.1
2	2		0	19.7	8.8	.1
3	3		0	19	7.6	.1
4	4		0	18.5	6.4	.1
5	5		.1	18.4	5.9	.1
6	6		.4	17.7	5.3	.1
7	7		.5	17.6	4.8	.1
8	8		.3	15.7	4.6	.1
9	9		0	12.5	4.2	.1
10	10		0	12.3	3.9	.1
11	11		0	13.8	3.7	.1
12	12		0	15.5	3.5	.1
13	13		0	18	3.4	.1
14	14		0	17.8	3	.1
15	15		0	13.2	3.2	.1
16	16		0	12.2	3.5	.1
17	17		0	13.4	3.1	.1
18	18		0	13.3	2.4	.1
19	19		.1	12.7	1.7	.1
20	20		1.9	14.3	1.4	.1
21	21		4	14.6	1.2	.1
22	22		6	12.8	.8	.1
23	23	0	9.1	12.5	.4	.1
24	24	0	11	12.3	.1	.1
25	25	0	9.8	13	.1	.1
26	26	0	9	13.7	.1	.1
27	27	0	12.7	13.2	.1	.1
28	28	0	16.8	12.9	.1	.1
29	29	0	19.5	12.8	.1	.1
30	30	0	21	13.2	.1	.1
31	31		20.1			.1
TOTAL	0	142.5	447.3	94.6	2.1	2
AVERAGE	0	4.6	14.9	3.1	.1	.1
MAX	0	21	20.6	11.6	.1	.1

WY2014 Total: 1,365.6 AF

Maximum Instantaneous Peak: 22.2 cfs on 29-MAY-14

Blank: Recorder not operated. No water diverted

M: Missing Data

South Fork Fryingpan River Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		.5	140.2	64	39.4	.3
2		0	138.9	75.2	32.8	.3
3		.8	139.4	68.9	27.3	.3
4		3.9	139.3	66.9	31.7	.3
5		7.3	139.5	62.5	33.5	.3
6		11.9	148	57.1	27.6	.3
7		13.6	148.2	51.5	23.8	.3
8		10.7	130.7	46.5	20.8	.3
9		7.5	103.1	38.6	19	.3
10		5.2	101.7	41	18.4	.3
11		3.2	114.2	52.4	11.1	.3
12		1.6	125.1	53.1	.2	.3
13		.8	141.7	42.6	.2	.3
14		.8	139.4	31.8	.2	.3
15		0	119.3	27.8	.2	.3
16		.1	120.8	28.9	.2	.3
17		2.3	124.6	32.9	.2	.3
18		9.7	123.2	29.8	.2	.3
19	.1	19	120.5	19.6	.2	.3
20	.1	31.3	124.5	14.3	.3	.3
21	.1	44.7	112.5	11.8	.3	.3
22	.1	55.8	106	8.3	.2	.3
23	.3	71.2	105.9	9.3	.3	.3
24	.5	79.2	109.6	8.1	.3	.3
25	2.7	64.5	103.2	8.4	.2	.3
26	4.9	59.1	100.3	6.6	.2	.3
27	4.4	83.9	84.3	2.8	.3	.3
28	2.2	114.4	69.5	24.6	.3	.3
29	1.2	136.5	65.4	36.5	.3	.3
30	.5	150.7	62.5	43	.3	.3
31		142.9			37.1	.3
TOTAL	16.9	1133.1	3501.3	1101.9	290.3	8.8
AVERAGE	1.4	36.6	116.7	35.5	9.4	.3
MAX	4.9	150.7	148.2	75.2	39.4	.3

WY2014 Total: 12,004.7 AF
 Maximum Instantaneous Peak: 178.7 cfs on 06-JUN-14
 Blank: Recorder not operated. No water diverted
 M: Missing Data

Mormon Creek Feeder Conduit near Norrie, CO
WY2014

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		5.7	57.3	32.7		
2		5.5	51.5	29.2		
3		6.4	52.3	23.6		
4		9.5	50.3	21.9		
5		13.8	49.4	19.2		
6		15.9	49.1	17.4		
7		15.8	48.5	15.6		
8		13.6	45	15		
9		10.6	35.1	13		
10		9.1	34.3	11		
11		8.2	40.6	11.1		
12		7.5	48.6	10.1		
13		6.9	53.4	8.8		
14		6.5	48.8	7		
15		6.1	36.6	7.3		
16		5.9	37.8	7.1		
17		7.4	38.9	6		
18		11	38	4.6		
19		17.1	39.2	3.6		
20		25.2	43.3	3		
21		32.9	39.1	2.6		
22		39.3	36.4	1.9		
23	4.7	43	37.8	.9		
24	9	40.3	39.5	0		
25	9.2	31.1	41.3	0		
26	11.1	28.1	38.8	0		
27	10.3	33	35.8	0		
28	8	35.1	36.8	0		
29	6.9	43	36.8	0		
30	6.2	52.4	37	0		
31		56.8				
TOTAL	65.4	642.7	1277.3	273	0	0
AVERAGE	8.2	20.7	42.6	8.8	0	0
MAX	11.1	56.8	57.3	32.7	0	0

WY2014 total (10 May 14 to 23 Aug 14): 4,479.5 AF
 Maximum Instantaneous Peak 68.4 cfs on 2 Jun 14
 Blank: Recorder not operated. No water diverted
 M: Missing Data

North Cunningham Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		.1	28.6	15.8		
2		.1	26.6	13.8		
3		.6	24	11.2		
4		2.5	22.2	10.1		
5		4.3	21.2	8.2		
6		4.9	20.2	6.7		
7		4.7	20.3	6		
8		3.8	19.8	5.6		
9		2.4	16.8	4.8		
10		1.6	16.3	4		
11		1.2	16.7	4		
12		.9	21.6	3.5		
13		.5	25.5	2.7		
14		.3	22.8	2		
15		.1	18.3	1.9		
16		.1	19.8	1.7		
17		.7	19.8	1.4		
18	0	3.2	19.4	.8		
19	0	6.8	21.1	.4		
20	0	11.3	22.5	.2		
21	0	15.5	19	.1		
22	0	18	18	0		
23	1.7	23.8	18.6	0		
24	2.6	21.7	22.2	0		
25	2.5	18.2	21.2	0		
26	3.5	16.2	19	0		
27	3.1	20.9	17.4	0		
28	1.6	26.2	18.2	0		
29	.8	28.4	17.6	0		
30	.4	30.1	17.7	.2		
31		27.6				
TOTAL	16.2	296.8	612.6	105.3		
AVERAGE	1.2	9.6	20.4	3.4	0	0
MAX	3.5	30.1	28.6	15.8	0	0

WY2014 Total: 2,044.8 AF

Maximum Instantaneous Peak: 39.7 cfs on 24-JUN-14

Blank: Recorder not operated. No water diverted

M: Missing Data

Middle Cunningham Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0	35	17		
2		0	33.7	14.8		
3		0	34.1	12.9		
4		.4	34.6	11.7		
5		1.1	34.4	10		
6		1.8	34.5	8.6		
7		2.1	33.8	7.6		
8		2.1	31.8	6.7		
9		1.3	26.3	5.9		
10		.7	26.6	5.4		
11		.3	29.4	5.4		
12		.2	36.2	4.7		
13		0	39.7	3.8		
14		0	34.6	3.1		
15		0	28.7	2.8		
16		0	29	2.6		
17		.4	28.8	2.1		
18	0	1.5	27.4	1.5		
19	0	4	27	1.2		
20	0	8	28.4	1		
21	0	13	26.4	.8		
22	0	16.1	24.5	.4		
23	.1	21	23.9	.2		
24	0	23.2	25.2	0		
25	.5	20.4	25.1	0		
26	1.1	18.5	23.5	0		
27	.6	26.6	21.3	0		
28	0	35.3	20.4	0		
29	0	34.9	19	0		
30	0	35.8	18.9	0		
31		33.7				
TOTAL	2.4	302.4	862.2	130.2		
AVERAGE	.2	9.8	28.7	4.2		
MAX	1.1	35.8	39.7	17		

WY2014 Total: 2,573.0 AF
 Maximum Instantaneous Peak: 52.9 cfs on 13-JUN-14
 Blank: Recorder not operated. No water diverted
 M: Missing Data

Ivanhoe Creek Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		1	85.3	6.6		
2		2.4	81.9	16.6		
3		3.1	105.8	17.3		
4		6.8	113.4	17.4		
5		12.6	116	15		
6		17	116.8	12.4		
7		19.2	114.6	10.5		
8		16.1	96.8	8.9		
9		10.1	51	7.6		
10		7.2	27	6.7		
11		5.7	39.8	8		
12		4.3	82.3	6.8		
13		3	86.4	5		
14		2.4	79.5	3.7		
15		1.1	68.9	3.8		
16		0	39.7	3.6		
17		3.2	25.6	2.5		
18		9.7	37.3	.3		
19		19	52.3	0		
20		32.2	51.6	0		
21		46.8	48.7	0		
22		56.5	44.6	0		
23		69.3	34.7	0		
24	6.8	69.4	19.1	0		
25	9.6	52.6	9.8	0		
26	13.5	48.6	8.1	0		
27	13.4	71.4	6.6	0		
28	9.8	99.3	6	0		
29	5.8	97	5.2	0		
30	2.8	92	4.5	0		
31		83.6				
TOTAL	61.8	962.4	1659.5	152.7		
AVERAGE	8.8	31	55.3	4.9		
MAX	13.5	99.3	116.8	17.4		

WY2014 total (10 May 14 to 23 Aug 14): 5,626.0 AF
 Maximum Instantaneous Peak 146.7 cfs on 28 May 14
 Blank: Recorder not operated. No water diverted
 M: Missing Data

Lily Pad Creek Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		1.1	25.2	4.7		
2		1.1	26.3	4.1		
3		1.4	26	3.8		
4		2	26.9	5.3		
5		2.5	26.5	5		
6		2.9	23.4	5		
7		3.2	19.4	4.8		
8		3	13.2	4		
9		2.5	11.4	3.5		
10		2.2	12.3	4.4		
11		2	13	5.5		
12		1.8	13.7	4		
13		1.6	15.5	3		
14		1.4	12	1.7		
15		1.3	9.5	1.8		
16		1.3	9.6	2.3		
17		1.8	10	2.9		
18		2.7	9	1.5		
19		4	8.4	1.3		
20		5.6	8.1	1.2		
21		7.1	7.7	1.1		
22		8.4	7.1	0.9		
23		10.2	6.7	0.8		
24		11.2	6.4	0.8		
25		10.7	6.5	0.8		
26	1.9	10.8	6.3	0.8		
27	1.7	12.7	5.8	0.7		
28	1.4	18.1	5.4	1		
29	1.2	21.8	5.1	1.6		
30	1.2	25.6	5.1	1.7		
31		24.2				
TOTAL	7.4	205.9	381.8	79.9		
AVERAGE	1.5	6.6	12.7	2.7		
MAX	1.9	25.6	26.9	5.5		

WY2014 Total: 1,338.9 AF
 Maximum Instantaneous Peak: 29.7 cfs on 04-JUN-14
 Blank: Recorder not operated. No water diverted
 M: Missing Data

Granite Creek Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1			23.8	7.4	2	
2			22.8	6.3	1.2	
3		0	23.5	5.3	.6	
4		0	23.8	5	1.6	
5		0	23.6	4.4	2.3	
6		.1	22.9	3.8	1.2	
7		.2	22.1	3.4	.7	
8		.1	18.8	3.1	.4	
9		0	16.1	2.8	.3	
10		0	15.3	3.5	.2	
11		0	16.9	5.2	.1	
12		0	18.9	3.9	0	
13		0	20.6	3	0	
14		0	18.3	2.1	.1	
15		0	15.1	2.2	.1	
16		0	15.1	2.6	0	
17		0	15.6	2.5	0	
18		.2	15.3	1.4	0	
19		.9	14.5	1	0	
20		1.9	14.5	.9	0	
21		3.6	12.8	.7	0	
22		5.7	11.6	.5	0	
23		8.6	11.2	.5	0	
24		11.3	10.2	.4	0	
25		9.8	10	.6	0	
26		8.8	9.7	.6	.2	
27		12.4	9.1	.3	.7	
28		18.9	8.8	1.2	.1	
29		21	8.4	1.7	0	
30		23.1	8.5	1.4	0	
31		22.8			1.5	
TOTAL		149.5	478	79.3	11.9	
AVERAGE		5.2	15.9	2.6	.4	
MAX		23.1	23.8	7.4	2.3	

WY2014 Total: 1,425.5 AF

Maximum Instantaneous Peak: 44.5 cfs on 28-MAY-14

Blank: Recorder not operated. No water diverted

M: Missing Data

No Name Creek Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0	33.9	18.2	0.1	0
2		0	38.1	10.2	0	0
3		0	47.7	0	0	
4		.2	53.9	0	0	
5		.6	45.3	0	0	
6		1.7	38.4	0	0	
7		1.4	44.9	0	0	
8		0	47	0	0	
9		.3	44.6	0	0	
10		.1	44.2	0	0	
11		0	44.6	0	0	
12		0	42.6	0	0	
13		0	40.1	0	0	
14		0	45.1	0	0	
15		0	40.8	0	0	
16	0	0	40.6	0	0	
17	0	.6	41.4	0	0	
18	0	3.1	39.6	0	0	
19	0	7.2	37	0	0	
20	0	14.2	36.6	0	0	
21	0	22.9	34.4	0	0	
22	0	27.3	32.2	0	0	
23	0	34.2	29.3	0	0	
24	0	37.3	27.1	0	0	
25	0	28.3	26.5	0	0	
26	.1	25	26	0	0	
27	0	40.6	23.6	0		
28	0	47.1	22.1	0	0	
29	0	43.8	20.9	0	0	
30	0	49.9	20.7	0	0	
31		49.5			0	0
TOTAL	.2	435.3	1109.3	28.5	.1	
AVERAGE	0	14	37	.9	0	
MAX	.1	49.9	53.9	18.2	0	

WY2014 Total: 3,120.8 AF

Maximum Instantaneous Peak: 63.3 cfs on 03-JUN-14

Blank: Recorder not operated. No water diverted

M: Missing Data

Midway Creek Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0	66.9	53.8	.2	0
2		0	59	47.4	.2	0
3		0	66.6	43.3	.2	0
4		2.4	72.5	41.2	.2	
5		5.4	80.3	35.5	.2	
6		7.3	82.8	31.1	.2	
7		8.9	68.4	28.9	.2	
8		5.6	76.3	26.5	.2	
9		2.5	74.1	24.6	.2	
10		1.2	73.5	33.9	.2	
11		.4	79.3	44.3	.2	
12		0	78.3	32.3	.2	
13		0	79.7	24.7	.2	
14		0	80.1	20.2	.2	
15		0	78.4	18.6	.2	
16		0	76.7	18.2	.2	
17	0	2	78.2	15	.1	
18	0	7.5	76.6	3.4	.1	
19	0	14.7	74.5	.2	.1	
20	0	24.3	75.5	.2	.1	
21	0	32.3	77.4	.2	.1	
22	0	38.5	73.1	.2	.1	
23	0	48.6	70.1	.2	.1	
24	0	52.3	68.2	.2		
25	.6	44.2	66.8	.2	0	
26	2.3	37.5	65.2	.2	0	
27	.7	56.9	57.3	.2		
28	0	67.5	58.9	.2	0	
29	0	70.7	60	.2	0	
30	0	66.4	60.9	.2	0	
31		56.6			.2	0
TOTAL	3.8	654	2155.8	544.8	3.2	0
AVERAGE	.3	21.1	71.9	17.6	.1	0
MAX	2.3	70.7	82.8	53.8	.2	0

WY2014 Total: 6,667.7 AF

Maximum Instantaneous Peak: 105.8 cfs on 10-JUL-14

Blank: Recorder not operated. No water diverted

M: Missing Data

Hunter Creek Feeder Conduit near Norrie, CO						
WY2014						
Unit: Cubic Feet per Second						
Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0	73	30.5	0	0
2		0	54.5	24.4	0	0
3		0	46.1	20.9	0	0
4		1	39	19.8	0	
5		5.3	33	15.4	0	
6		6.6	53.3	11.4	0	
7		3.9	65.4	13	0	
8		0	69.8	14.5	0	
9		0	61.7	16.4	0	
10		0	58.5	13.9	0	
11		0	63.9	22	0	
12		0	66.9	19.5	0	
13		0	69.5	12.8	0	
14		0	65.9	6	0	
15		0	59.9	1.2	0	
16		0	58.2	0	0	
17	0	0	55.7	0	0	
18	0	2.2	50.8	0	0	
19	0	12.1	54.1	0	0	
20	0	24	62.4	0	0	
21	0	35.9	63.6	0	0	
22	0	42.6	58	0	0	
23	0	54.8	54.9	0	0	
24	0	61.4	46.8	0	0	
25	0	48.7	42.3	0		
26	.1	36.2	42.9	0		
27	.8	53.5	40.4	0		
28	0	64.3	39.6	0	0	
29	0	68.2	36.9	0	0	
30	0	71	35	0	0	
31		76.4			0	0
TOTAL	1	668.2	1621.9	241.8	.1	0
AVERAGE	.1	21.6	54.1	7.8	0	0
MAX	.8	76.4	73	30.5	0	0
WY2014 Total: 5,024.2 AF						
Maximum Instantaneous Peak: 101.4 cfs on 30-MAY-14						
Blank: Recorder not operated. No water diverted						
M: Missing Data						

Sawyer Creek Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0.9	30.6	19.7	8.2	
2		0.8	30.1	17.7	7.2	
3		1.1	29	15.8	6.3	
4		1.7	28.5	14.4	8.2	
5		2.1	27.9	13.3	9.9	
6		2.4	29.5	12.3	8	
7		2.7	26.8	11.5	6.9	
8		2.5	24.2	10.8	6.1	
9		2.2	20.8	9.9	5.4	
10		2.1	20.4	9.1	5	
11		2.2	22.5	10.4	4.6	
12		2.2	30.3	15.1	4.2	
13		2	33.2	16.4	3.8	
14		1.7	30.1	11.4	3.6	
15		1.5	25.5	9.6	3.4	
16		1.4	24.9	9	3.1	
17	0	1.8	27.1	8.4	2.8	
18	0	2.5	27.7	7.3	2.6	
19	0	3.4	26.1	6.5	2.6	
20	0	4.6	26.7	6.3	2.8	
21	0	5.9	24.9	5.9	2.5	
22	0	7.3	22.5	5.2	2.3	
23	0	10.3	22.8	4.9	3.1	
24	0.5	13.8	22.5	4.6	2.6	
25	1.2	14.5	22.6	4.3	1.3	
26	1.3	13.2	23	4	0	
27	1.3	14.8	21.5	3.7		
28	1.2	21.4	20.4	9.4		
29	1.1	27.4	20.1	11.1		
30	1	29.7	20.5	10.2		
31		29.2			8.9	
TOTAL	7.6	229.2	762.7	307.1	116.4	
AVERAGE	.5	7.4	25.4	9.9	4.5	
MAX	1.3	29.7	33.2	19.7	9.9	
WY2014 Total: 2,822.5 AF						
Maximum Instantaneous Peak: 37.5 cfs on 12-JUN-14						
Blank: Recorder not operated. No water diverted						
M: Missing Data						

Chapman Gulch Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		2.6	295.8	174.5	31.1	0
2		4	270.6	150.6	24.7	0
3		6.3	278.9	125.2	21	0
4		13	292.5	119.6	35.1	0
5		26.4	281.5	106.5	39.7	0
6		31.5	280.8	93	29.5	0
7		34.9	296.5	89.3	23.8	0
8		21.7	289.5	84.8	20.5	0
9		14.9	256.2	82	18.7	0
10		12.2	254.6	84.3	17.5	0
11		9.8	276.3	116.3	15.7	0
12		7.9	297.6	128.5	9.4	0
13		5.5	298.1	101	1.7	0
14		4.9	298.3	71.1	1.7	0
15		3.9	266.5	59.5	1.7	0
16	1.7	1.7	265.9	59.6	1.7	0
17	1.7	7.9	270.4	51.2	1.7	0
18	1.8	27	270	34.2	1.7	0
19	1.7	55.2	262.4	25.7	1.7	0
20	1.8	92.1	267.4	25.8	1.7	0
21	1.8	129.6	261	23.7	1.7	0
22	1.8	153.4	243.6	20.2	1.7	0
23	1.7	192.1	235.4	19.3	2	0
24	3.8	215.2	218.6	18.3		0
25	7.9	185.7	207.7	17.4		0
26	12	147.5	210.6	16		0
27	10.7	203	200.2	14		0
28	6.2	270.7	196.5	44.7	0	0
29	5.2	292.1	193.6	45.9	0	0
30	3.6	304	193.4	38.7	0	0
31		285			32	
TOTAL	63.3	2761.7	7730.3	2072.8	305.9	0
AVERAGE	4.2	89.1	257.7	66.9	11.8	0
MAX	12	304	298.3	174.5	39.7	0

WY2014 Total: 25,654.6 AF
 Maximum Instantaneous Peak: 321.6 cfs on 31-MAY-14
 Blank: Recorder not operated. No water diverted
 M: Missing Data

Fryingpan River Feeder Conduit near Norrie, CO

WY2014

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		2.6	218.7	127.5	58	.8
2		3.2	212.4	120.3	51.1	.8
3		7.2	216.3	110.7	42.8	.8
4		17.7	221	106.7	47.8	.8
5		23.6	224.6	101.6	51.4	.8
6		30.1	221.2	93.1	42.8	.8
7		35.8	214.3	86.5	36.1	.8
8		31.2	185.2	84.3	31.5	.8
9		24.1	149.6	81	28.2	.8
10		18.8	137.7	84	27	.8
11		15.7	151.9	100.2	24.6	.8
12		11.6	166	96.4	13.9	.8
13		8.7	190.1	86.8	7.7	.8
14		7	183.9	67.3	15.9	.8
15		4.1	154.7	60	14	.8
16		1.7	152.8	60.5	10.4	.8
17		10.9	160.3	54	8.4	.8
18		27	157.1	37.1	7.3	.8
19		43.8	150.3	28.8	6.7	.8
20		60.2	157.9	26.4	7.8	.8
21		76.1	148.2	24.4	5.8	.8
22		86.6	135.7	19	5.2	.8
23		109	134.7	15.4	6.7	.8
24	9.2	120.8	132.8	9.2	3.9	.8
25	14.2	103.4	132.9	9.8	.8	.8
26	15.2	91.8	130.1	7.9	.8	.8
27	11.7	127.5	111.3	3.1	.8	.8
28	7.5	171	105.3	17.4	.8	.8
29	5.7	198.4	109.2	25.5	.8	.8
30	3.6	215.2	122.2	35.1	.8	.8
31		209.2			52.6	.8
TOTAL	67	1893.7	4888.2	1832.6	560.6	23.5
AVERAGE	9.6	61.1	162.9	59.1	18.1	.8
MAX	15.2	215.2	224.6	127.5	58	.8

WY2014 Total: 18,378.32 AF

Maximum Instantaneous Peak: 272.8 cfs on 04-JUN-14

Blank: Recorder not operated. No water diverted

M: Missing Data

**APPENDIXE E:
FRYINGPAN-ARKANSAS
PROJECT OPERATING
PRINCIPLES**

OPERATING PRINCIPLES

FRYINGPAN-ARKANSAS PROJECT

ADOPTED BY THE STATE OF COLORADO

APRIL 30, 1959

(As amended December 30, 1959,
and December 9, 1960)

MARCH 15, 1961----Ordered to be printed

U. S. GOVERNMENT PRINTING OFFICE

WASHINGTON: 1961

H. RES. 91

In the House of Representatives, U. S.,

March 15, 1961.

Resolved, That there be printed as a House document the publication entitled “Operating Principles, Fryingpan-Arkansas Project, Adopted by the State of Colorado, April 30, 1959 (as amended December 30, 1959, and December 9, 1960)”, and that there be printed for the use of the Committee on Interior and Insular Affairs one thousand additional copies.

Attest:

Ralph R. Roberts, Clerk.

OPERATING PRINCIPLES, FRYINGPAN-ARKANSAS PROJECT

ADOPTED BY THE STATE OF COLORADO, APRIL 30, 1959

(As Amended December 30, 1959, and December 9, 1960)

The construction and operation of the project involve the diversion of water from the headwaters of the Fryingpan River and other tributaries of the Roaring Fork River to the Arkansas River Basin. The project contemplates—

- (a) The maximum conservation and use of water;
- (b) The protection of western Colorado water uses, both existing and potential, in accordance with the declared policy of the State of Colorado; and
- (c) The preservation of recreational values.

In order to accomplish such purposes, the project shall be operated by the United States in compliance with the Federal reclamation laws, the laws of the State of Colorado relating to the appropriation, use, or distribution of water, and the following operating principles:

1. As used herein:
 - (a) “Project” means that certain enterprise planned and designed by the Bureau of Reclamation, Department of the Interior, for the transmountain diversion of water from the headwaters of the Fryingpan River and other tributaries of the Roaring Fork River to the basin of the Arkansas River, together with all of its appurtenant works and facilities in both eastern and western Colorado.
 - (b) “Eastern Colorado” means that portion of the State of Colorado lying within the natural drainage basin of the Arkansas River.
 - (c) “Western Colorado” means that portion of the State of Colorado lying within the natural drainage basin of the Colorado River and served by diversions made from the Colorado River, or its tributaries, above its confluence with the Gunnison River.
 - (d) “Southeastern Colorado Water Conservancy District” means that entity created to contract for payment to the United States of an appropriate portion of project cost allocated to certain water uses in eastern Colorado.
 - (e) “Colorado River Water Conservation District” means that entity created by Colorado Revised Statutes 1953, 149-8, as amended.
 - (f) “Southwestern Water Conservation District” means that entity created by Colorado Revised Statutes 1953, 149-9, as amended.
 - (g) “Ruedi Reservoir” means the reservoir presently planned for construction on the Fryingpan River above the town of Basalt as part of the project.
 - (h) “Ashcroft Reservoir” means not only the reservoir contemplated for construction on Castle Creek, a tributary of the Roaring Fork River, but also, unless the context

requires otherwise, any other reservoir that may be constructed in the Roaring Fork basin above the town of Aspen in lieu of that reservoir.

- (i) “cfs” means cubic feet of water per second of time.
2. The Ruedi Reservoir shall be constructed and maintained on the Fryingpan River above the town of Basalt with an active capacity of not less than 100,000 AF. In addition thereto and in order to offset adverse streamflow conditions on the Roaring Fork River above the town of Aspen which might occur as a result of the project enlargement of the Twin Lakes Reservoir, the Ashcroft Reservoir on Castle Creek, or some reservoir in lieu thereof, shall be constructed on the Roaring Fork drainage above Aspen to a capacity of approximately 5,000 AF: Providing, However, That the Ashcroft Reservoir shall be constructed only if the Secretary of the Interior after appropriate study shall determine that its benefits exceed the costs: And providing further, That no part of the construction, operation, or maintenance of said Ashcroft Reservoir shall be chargeable to the Fryingpan-Arkansas project.

All of such stored water shall be released under the conditions and limitations hereinafter set forth.

3. The receipts from the sale of water from Ruedi Reservoir, as permitted in paragraph 6(b) hereof, shall be applied solely to the operation and maintenance costs and to those reimbursable construction costs of said reservoir which exceed \$7,600,000. The cost of perpetual operation and maintenance of the Ruedi Reservoir shall be borne by users of project water and users of water stored in Ruedi Reservoir in such proportion as may be determined by the Secretary of the Interior.
4. The inclusion of the Ruedi Reservoir in the project shall not preclude the construction of any other replacement or regulatory reservoirs on the Colorado River or its tributaries above Cameo gaging station.
5. The Ruedi Reservoir shall be completed and in operation before any water is diverted to eastern Colorado by means of the project.
6. (a) The replacement capacity of Ruedi Reservoir, and any reservoir constructed in addition thereto, is that portion of the total reservoir capacity required to permit project diversions at times when such diversions could not otherwise be made because of simultaneous demands of senior diversions in western Colorado existing at the time of the adoption of these operating principles, and shall be so operated to accomplish this purpose. Water stored in such capacity shall be released by the United States, upon the request of the Colorado State engineer, to the extent that water would have been available to said decreed rights except for stream depletion resulting from diversions by this project to the Arkansas Valley.
- (b) The regulatory capacity of Ruedi Reservoir, and any reservoir constructed in addition thereto, is that portion of the total reservoir capacity not needed for replacement purposes. Water stored in such category may be sold or leased by

the United States to water users in Colorado for any purpose recognized by the laws of the United States: Provided, That the sale of water for use outside the natural basin of the Colorado River can only be made with the consent of the Colorado River Water Conservation District. Charges for the use of such water shall be established by the Secretary of the Interior by appropriate contract in accordance with the payment ability of such water users.

7. The primary purpose of Ruedi Reservoir, and any reservoir constructed in addition thereto, is to furnish, to the extent of its capacity, in like manner as if the project were constructed by a water conservancy district organized pursuant to the laws of the State of Colorado, the water required for the protection of western Colorado water users by the provisions of Colorado Revised Statutes 1953, 149-6-13, reading as follows:

However, any works or facilities planned and designed for the exportation of water from the natural basin of the Colorado River and its tributaries in Colorado, by any district created under this article, shall be subject to the provisions of the Colorado River Compact and the Boulder Canyon Project Act. Any such works or facilities shall be designed, constructed and operated in such a manner that the present appropriations of water, and in addition thereto prospective uses of water for irrigation and other beneficial consumptive use purposes, including consumptive uses for domestic, mining, and industrial purposes, within the natural basin of the Colorado River in the State of Colorado, from which water is exported, will not be impaired nor increased in cost at the expense of the water users within the natural basin. The facilities and other means for the accomplishment of said purpose shall be incorporated in, and made a part of any project plans for the exportation of water from said natural basin in Colorado.

8. Project diversions from Lime Creek shall be made only in the months of May and June of each year, unless the Colorado River Water Conservation District shall, by written communication, advise the Colorado State engineer that additional diversions can be made.
9. The respective decrees which may be or have been awarded to the parties hereto as a part of the Fryingpan-Arkansas project and Basalt project shall be administered by the proper officials of the State of Colorado, in accordance with the applicable laws of the State of Colorado, and with the following principles and procedures, to wit:
 - (1) That the demand on the waters available under such decrees shall be allocated in the following sequence:
 - (a) For diversion to the Arkansas Valley through the collection system and the facilities of the Fryingpan-Arkansas project in an amount not exceeding an aggregate of 120,000 AF of water in any year, but not to exceed a total aggregate of 2,352,800 AF in any period of 34 consecutive years reckoned in continuing progressive series starting with the first full year of diversions, both limitations herein being exclusive of Roaring Fork

exchanges as provided in (c) below, and exclusive of diversions for the Busk-Ivanhoe decree; and with the further and absolute limitation that in order to protect existing and future beneficial uses of water in Western Colorado, including recreational and fishing values, the State engineer shall so regulate the transmountain diversions above referred to, to the end that no diversions shall be made which will reduce the remaining aggregate streamflows to less than either of the following minimum standards:

- (i) The Fryingpan collection system at the points of diversion collectively, exclusive of Lime Creek: 15 cfs October 1 through March 31; 30 cfs April 1 through September 30.
- (ii) Near Norrie (immediately below the junction of North Fork and Fryingpan River): 30 cfs October 1 through March 31; 100 cfs April 1 through April 30; 150 cfs May 1 through May 31; 200 cfs June 1 through June 30; 100 cfs July 1 through July 31; 75 cfs August 1 through August 31; 65 cfs September 1 through September 30.

In maintaining the above minimum standards, the project diversions shall be regulated, so far as is practicable, in such a manner that the North Fork of the Fryingpan River, the Fryingpan River, and each of the tributaries of those streams, shall contribute to the residual streamflows required by those minimum standards quantities of water in proportion to their natural contributions.

- (b) For storage in Ruedi Reservoir to the extent of its actual capacity, which is to be not less than 100,000 AF.
 - (c) For 3,000 AF annually, to the extent that it is available in excess of (a) and (b) above, or such part thereof as may be required, to be delivered to the Twin Lakes Reservoir and Canal Company in exchange for equivalent releases from the headwaters of the Roaring Fork River which would otherwise be diverted through such Twin Lakes Reservoir and Canal Company collection and diversion system.
 - (d) For any other beneficial use in western Colorado in accordance with court decree, but not herein contemplated.
- (2) The effectuation of the above principles requires concurrent Fryingpan-Arkansas project diversion and Ruedi Reservoir storage to be accomplished in the manner following: The State engineer annually shall collect pertinent data, including information pertaining to snowpack and all other available evidence, and shall thereafter so divide and apportion the surface runoff as to achieve, as nearly as possible, the foregoing division of water and the maximum of concurrent diversions and storage. The diversions herein contemplated shall be on the basis

of a water year hereby defined as that interim of October 1 through the following September 30.

10. For the protection of recreational values, including fishing, on the Fryingpan River below Ruedi Reservoir, releases of water from said reservoir, not to exceed the stream inflow, shall be made so that the streamflow immediately below the junction of the Fryingpan River and Rocky Fork shall not be reduced below 39 cfs from November 1 to April 30, and 110 cfs from May 1 to October 30, or as actual experience or court decree hereafter dictate.
11. An appropriate written contract may be made whereby Twin Lakes Reservoir and Canal Company shall refrain from diverting water whenever the natural flow of the Roaring Fork River and its tributaries shall be only sufficient to maintain a flow equal to or less than that required to maintain the recommended average flows in the Roaring Fork River immediately above its confluence with Difficult Creek in a quantity proportionate to the respective natural flow of the Roaring Fork River. The recommended average flows above mentioned are flows in quantities equal to those recommended as a minimum immediately above its confluence with Difficult Creek according to the following schedule submitted by the United States Fish and Wildlife Service and the Colorado Game and Fish Commission:

Month	Average Second-feet	AF (thousands)	Month	Average Second-feet	AF (thousands)
October	44	2.7	May	100	6.2
November	35	2.1	June	120	7.1
December	29	1.8	July	100	6.2
January	26	1.6	August	63	3.9
February	25	1.4	September	44	<u>2.6</u>
March	24	1.5			
April	64	3.8	Total	----	40.9

In maintaining the above averages, at no time shall the flow be reduced below 15 cfs during the months of August to April, inclusive, or below 60 cfs during the months of May to July, inclusive, providing the natural flow during said period is not less than these amounts. The obligation to supply the minimum streamflow as set forth in the above table on the Roaring Fork River shall, to the extent of 3,000 AF annually, be a project obligation to be supplied from any waters diverted from the south tributaries of Hunter Creek, Lime Creek, Last Chance Creek, or any of them.

The Twin Lakes Reservoir and Canal Company shall not be required to refrain from diverting water under its existing decrees from the Roaring Fork River except to the extent that a like quantity of replacement water is furnished to said company without charge therefore through and by means of project diversions and storage.

If by reason of storage capacity in the Ruedi Reservoir, or any reservoir constructed in addition thereto, the Twin Lakes Reservoir and Canal Company derives additional water or other benefits or advantages it would not have realized had this project not been constructed, then nothing herein contained shall prevent the project from making appropriate charges for such water or other benefits or advantages. All revenues derived from the use of water stored in Ashcroft Reservoir shall be used to assist in the repayment of the construction, operation, and maintenance costs of that reservoir, or any reservoir constructed in lieu thereof, as may be determined by the Secretary of the Interior.

12. All lands acquired and held for project construction and operation and water surfaces of project reservoirs will be open to the public for recreational purposes, excepting those areas reserved by the operating agency.
13. The project will be operated in such a manner that those in eastern Colorado using project water imported from the Colorado River Basin for domestic purposes shall have preference over those claiming or using water for any other purpose.
14. The project is to be operated in such a manner as to secure the greatest benefit from the use and reuse of imported project waters within project boundaries in the State of Colorado
15. Any and all benefits and rights of western Colorado water users in and to water stored in Green Mountain Reservoir, as described and defined in Senate Document 80, 75th Congress, 1st session, shall not be impaired or diminished by this project.
16. The project, its operation, maintenance, and use shall be subject to the provisions of the Upper Colorado River Basin Compact of October 11, 1948 (Public Law 37, 81st Congress, 1st session), and the Colorado River Compact of November 24, 1922 (House Document 605, 67th Congress, 4th session).
17. The Colorado River Water Conservation District of the State of Colorado shall acquire title to storage of water in Ruedi Reservoir and any reservoir constructed in addition

thereto, by appropriate proceedings in the courts of the State of Colorado. The Southeastern Colorado Water Conservancy District of the State of Colorado shall likewise acquire title to the water required by the project for diversion to the Arkansas Valley. The Secretary of the Interior shall at any time after the authorization of the project have the option to obtain or require the transfer to the United States of any and all rights initiated or acquired by appropriation as herein set forth: Provided, however, That the rights so taken shall be subject to a beneficial use of such water as may be provided in the repayment contract or contracts, and subject to all the operating principles herein set forth.

18. No transmountain diversion of water shall ever be made through the collection and diversion system of the Fryingspan-Arkansas Project in excess of the quantitative limitations and conditions established by this document: Provided, however, That when under the laws of the State of Colorado, there may be additional water available for such collection and diversion which is not at the time of diversion required for beneficial use in western Colorado or for filling interstate water compact agreements, then such water may be collected and diverted for beneficial use in the Arkansas Valley: Provided further, That such additional diversion shall only be made with the mutual consent of each of the following agencies of the State of Colorado, to wit: the Colorado Water Conservation Board, the Southwestern Water Conservation District, the Colorado River Water Conservation District, and the Southeastern Colorado Water Conservancy District.
19. To assure project operation in conformity with the operating principle heretofore stated, to provide a means for the collection and interchange of information, and to provide a method for the continued study of project operations to the end that, if the stated operating principles may be improved upon, recommendations for changes may be made to the contracting parties, a commission shall be created in an appropriate manner to be composed of one representative of the Southeastern Colorado Water Conservancy District, one representative of the Colorado River Water Conservation District, two representatives of the United States, and one representative of the State of Colorado appointed by the Colorado Water Conservation Board after consultation with the Colorado Game and Fish Commission. The powers of such commission shall be limited to the collection of data, the making of findings of fact, and the suggestion of changes in operating principles.

These operating principles shall be deemed to have amended and take the place of those operating principles signed and executed on April 30, 1959. These operating principles shall be and do constitute a contract between the signatory parties, and shall inure to the benefit of and shall be and remain binding upon said parties, their respective successors and assigns.

Executed as amended at Denver, Colorado, this 9th day of December 1960.

COLORADO WATER CONSERVATION BOARD

Steve McNichols, Chairman;

Governor, State of Colorado

Attest:

Felix L. Sparks,

Director and Secretary

SOUTHEASTERN COLORADO WATER CONSERVANCY

DISTRICT

By J. Selby Young, President

Attest:

J. G. Shoun,

Secretary

COLORADO RIVER WATER CONSERVATION DISTRICT

By A. Allen Brown, President

Attest:

Philip P. Smith,

Secretary

SOUTHWESTERN WATER CONSERVATION DISTRICT

By Ira E. Kelly, President

Attest:

Archie B. Toner,

Secretary