

RECLAMATION

Managing Water in the West

Annual Operating Plan

Fryingpan — Arkansas Project

Water Year 2015 Summary of Actual Operations

Pueblo Dam, Colorado



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

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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 2012	Fiberoptic control of west slope systems from the east slope
February 27, 2014	Reclamation issued Record of Decision for Arkansas Valley Conduit and Long Term Excess Capacity Master Contracts

ANNUAL OPERATING PLAN FRYINGPAN-ARKANSAS PROJECT
WATER YEAR 2015 OPERATIONS

I. GENERAL

This is the forty-seventh annual operating plan (AOP) for the Fryingpan-Arkansas Project. 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 (eighty-seventh Congress, first Session), and are included in Appendix E.

This AOP is a summary of the actual project operation in Water Year (WY) 2015 (October 1, 2014 through September 30, 2015).

II. PROJECT FEATURES IN OPERATION DURING WATER YEAR 2015

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 AF at a water surface elevation of 7,766.0 ft. 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 sixteen 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 ft. 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 ft. 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 ft. msl (54,955 AF). In the 1980's, a 24 inch bypass line used during construction was grouted. At that time, the dead pool was increased to 9,162.8 ft. 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 ft. 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 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. Pueblo 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 ft. 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 through 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 water year.

The majority of project water deliveries are made from Pueblo 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 are 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 facilities are complete and Colorado Springs Utilities began to fill and test facilities and

operations in WY2015. The SDS Project is expected to begin water deliveries in the spring of 2016.

Pueblo West Metropolitan District discovered a break in the 24-inch water line from the South Outlet Works north of the Arkansas River near its pumping plant in July 2015. They submitted an emergency request to use SDS Project infrastructure. The terms of the agreement allowed delivery until the line could be repaired. There was no vesting of rights and the use did not constitute “delivery of water”. This did not trigger or affect rights, obligations and provisions of Case 09CV695, which was in the process of dismissal, or other provisions of the SDS 1041 permit.

Reclamation signed a Record of Decision on February 27, 2015 selecting the Arkansas Valley Conduit (AVC), Interconnect, and Master Contract actions. Efforts on AVC are ongoing with feasibility-level engineering design, permitting, and land acquisition activities, as federal funds allow. AVC would serve a projected 2070 population of 74,000, at an estimated construction cost of 400 million (2011) dollars. Excess capacity revenues may be used to credit payment of AVC. Public Law 111-11 provides for construction cost sharing at 65 percent federal and 35 percent non- federal funding. Reclamation and the Southeastern Colorado Water Conservancy District expect to begin negotiating the Master Contract, a long-term excess capacity storage contract at Pueblo Reservoir, in early 2016.

III. HYDROLOGIC CONDITIONS AND WEATHER EVENTS IN WATER YEAR 2015

Precipitation over the Fryingspan watershed above Ruedi Reservoir was above average for most of WY2015. WY2015's cumulative precipitation started slightly below average at 94 percent of average by the end of October 2014 and remained very close to average until February 2015. In early February 2015 precipitation started to increase rapidly and remained above average for the rest of the month. At the end of February 2015, total basin precipitation had increased to 116 percent of average and then by the end of March 2015 total precipitation for the basin was 113 percent of average. For April 2015 through May 2015 total basin precipitation remained relatively constant at about 108 percent of average. From May 2015 until the end of WY2015 precipitation remained above average continuing at about 110 percent of average.

Snowpack in the collection system began accumulating in October 2014 at an average rate, continuing until March 2015. At the beginning of March 2015, accumulations stopped and it seemed there would be a below average water year. Snowpack usually begins to decline in May but in 2015, a series of spring storms led by an El Nino and two tropical storms from the Pacific kept the snowpack level from declining until the middle of June 2015. The increased snowpack led to higher than average imports. The combined Snow Water Equivalents (SWE) compared to average is shown in Figure 1.

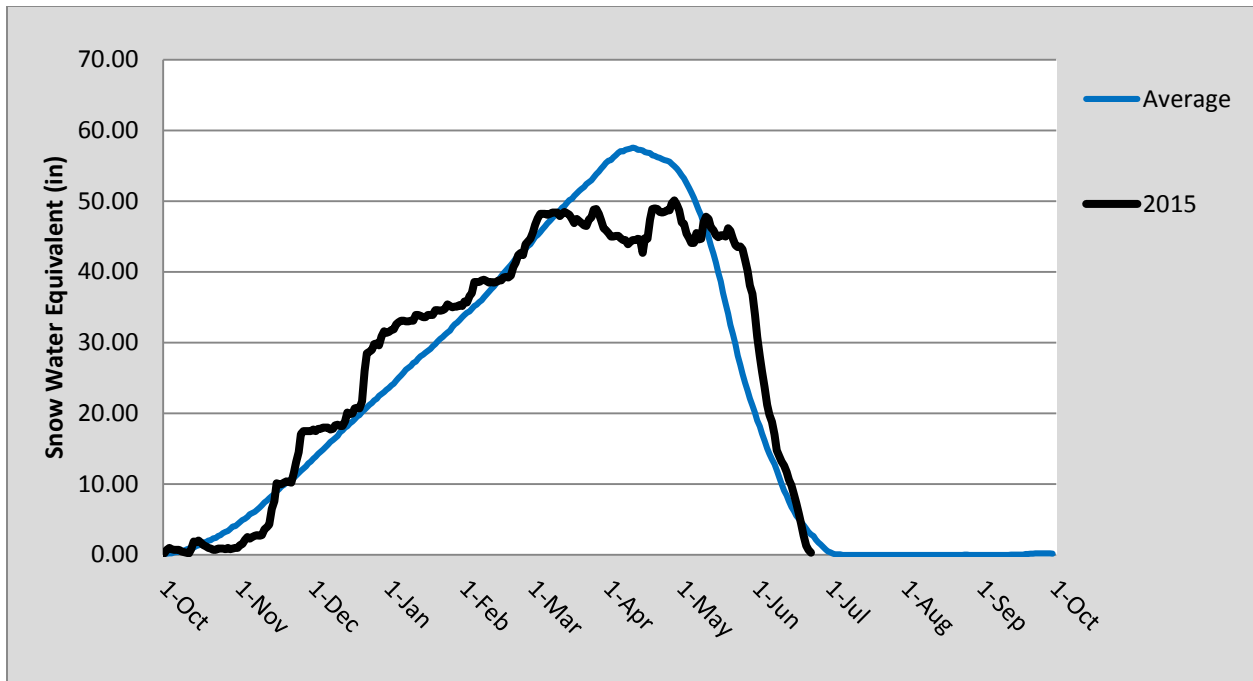


Figure 1: Combined Snow Water Equivalent of Fremont Pass, Independence Pass, Ivanhoe Lake and Nast SNOTEL sites

Import forecasts were made using the VIPER software package developed for the FryArk Project by the National Weather Service in 2014. The forecasts for 2015 were:

- March 68,560 AF
- May 15 65,000 AF

- April 1 63,000 AF
- April 15 47,100 AF
- May 1 53,020 AF
- June 1 72,300 AF
- June 15 71,100 AF
- Actual Imports: 72,205 AF

The collection system opened earlier than normal on April 23, 2015 and began diverting when it appeared there would be a lower than average import. The inflow from the Boustead Tunnel peaked between June 14, 2015 and June 21, 2015. The last SNOTEL site to melt out was Fremont Pass on June 24, 2015 (see Figure 2). On average, all the SNOTEL sites in the forecast group melted out about 6 days before the normal melt out date.

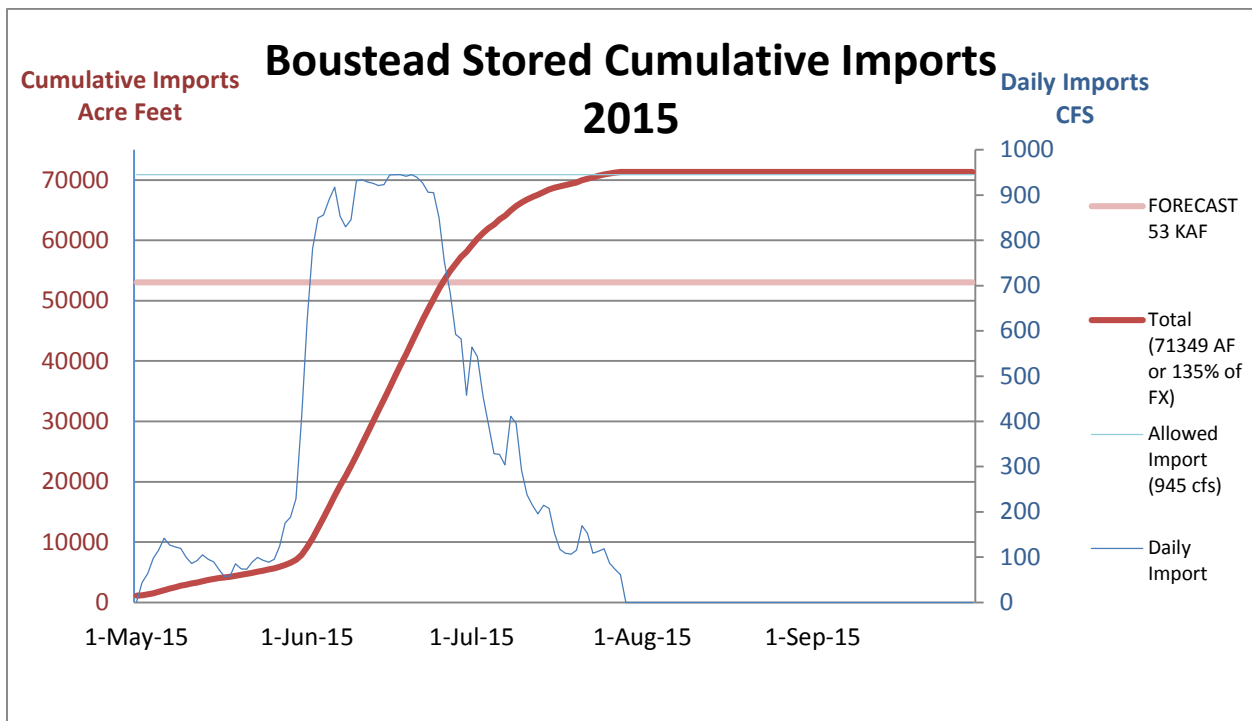


Figure 2: Boustead Tunnel Imports

Average daily temperatures measured at the SNOTEL sites in and around the upper Fryingpan River basin were very close to average for the entire year. In the fall and early winter months temperatures ranged from a low at 97 percent to a high of 113 percent of average. After January 1, 2015, temperature increased to 121 percent of average in February 2015. In the spring and summer months temperatures decreased back down to near normal levels and continued this trend until the end of September 2015.

Total Precipitation (in.) Sugarloaf Dam													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Ma	Jun	Jul	Aug	Sep	Annual
Average	1.14	1.16	1.29	1.6	1.54	1.36	1.66	1.43	0.89	2.14	2.14	1.6	17.95
2015	0.88	3.21	2.09	0.40	1.13	1.88	1.73	2.99	0.69	2.18	1.08	1.01	19.27

Total Precipitation (in.) Pueblo Dam													
Average	0.87	0.36	0.32	0.31	0.35	0.81	1.72	1.16	0.82	1.76	2.37	0.74	11.59
2015	0.88	0.42	0.26	0.40	1.16	0.81	1.93	6.24	2.58	1.34	2.15	0.11	16.73

Figure 3: Precipitation at Sugarloaf Dam and Pueblo Dam

Inflows to Ruedi Reservoir were above average for the fall, winter, and early spring months of WY2015; however, by May 2015 inflow started to fall below average. The cumulative inflow from October 2014 through the end of March 2015 was 147 percent of average. Then over the April 2015 through July 2015 runoff period cumulative inflow averaged 89 percent of average. Inflow during the spring months reached the seasonal peak on June 17, 2015 of 1,087 cfs. The total cumulative inflow to Ruedi Reservoir over the April 2015 to July 2015 period was 79,780 AF and ranked 19 out of the 30 year period which was the 60 percent exceedance.

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 2015 and July 2015. Although the Bureau of Reclamation was releasing project water during the advisories, the advisories would have been issued based on native flows alone. Because of the high flows which lasted through the summer and releases from other entities, no Project water was released in support of the Voluntary Flow Management Program.

High inflows on the Arkansas River brought Twin Lakes Canal Company (TLCC) east slope water rights into priority from May 8-13, 2015 and again from May 19, 2015 to July 19, 2015. TLCC reached its maximum storage capacity on June 3, 2015. Imports through Twin Lakes Tunnel were curtailed between June 3, 2015 and July 20, 2015 and the TLCC Exchange was stopped on June 17, 2015 and began again on July 19, 2015. This was done to maximize the east slope storage rights.

Heavy storms increased the flow at the Arkansas River at Avondale (ARKAVOCO) and the gage was forecast to exceed the internal alert threshold of 6,000 cfs on May 8, 2015. The threshold was exceeded May 11, 2015. On May 19, 2015, Pueblo Dam began storing flood waters to reduce the stage at ARKAVOCO. High flows at ARKAVOCO caused more flood storage at Pueblo Dam beginning June 11, 2015. Storing the flood waters caused Pueblo Reservoir to enter the flood control pool on June 12, 2015. The US Army Corps of Engineers (USACE) operated to attempt to keep the gage at ARKAVOCO below 6,000 cfs, cutting the releases from Pueblo Dam to minimum to help control a 10,000 cfs increase in flow from Fountain Creek on June 16, 2015. On June 19, 2015 to June 29, 2015, after the flood crest had passed, USACE authorized releases from Pueblo Reservoir to cause the gage at ARKAVOCO to exceed 6,000 cfs. Flood storage release was completed on July 8, 2015.

Increasing the flows from Pueblo Reservoir to evacuate the flood storage after the flood inflows from Fountain Creek had subsided caused ARKAVOCO to reach as high as 7,010 cfs. USACE, Colorado Division of Natural Resources (CO DWR) and BOR all monitored downstream effects from the dam to La Junta, CO. There were reports of flooding in structures in Avondale and Boone but none were determined to be from the mainstem flows.

IV. REPORT ON OPERATIONS DURING WATER YEAR 2015

A. Ruedi Reservoir

Ruedi Reservoir started out WY2015 with a storage content of 87,800 AF, which was 99 percent of average. In October 2014 the release from Ruedi was decreased to the winter flow target of 100 cfs and held at this rate until January 2015. The winter target releases were made through the city of Aspen's hydroelectric powerplant.

On January 9, 2015 a water order was issued to increase Ruedi Reservoir releases from 100 cfs to 125 cfs. This increase in release was the result of above average inflow through the fall and winter months and above average reservoir storage. In February 2015 the years first forecast of inflow to Ruedi was computed. This forecast indicated slightly below average inflow to Ruedi Reservoir, 92 percent of average, or an April 2015 through July 2015 volume of 130 kaf. Reservoir storage was still above average and the current release of 125 cfs was projected to draft Ruedi Reservoir down to the spring storage target so no further adjustments were made to the release.

In March 2015 the forecast was still predicting slightly below average inflow to Ruedi Reservoir. It actually increased slightly from the February 2015 forecast to 99 percent of average or 140 kaf April 2015 through July 2015 volume. Since reservoir storage was still above average a new projection of fill was made and it was determined that the release should be increased by 50 cfs to prevent a spill in the summer months. On March 9, 2015 a water order was given to increase the release from Ruedi Reservoir to 153 cfs and then on March 16, 2015 another increase was made bringing up the release to 183 cfs. By the end of March 2015, Ruedi Reservoir was drafted down to its lowest storage content of 74,696 AF. Snow was still accumulating at the SNOTEL sites and runoff was just starting to increase. The April 1 2015 most probable forecast of inflow for April 2015 through July 2015 called for 74 percent of average or 104 kaf. This forecast projected that Ruedi Reservoir would fill under the most probable case and spill under the max reasonable case.

Runoff continued to increase in early May 2015 and Ruedi Reservoir slowly started refilling. The release from Ruedi Reservoir was increased several times throughout May 2015 and by the end of May 2015 the release was over 200 cfs. Snow accumulation peaked in early April 2015 and by the end of May 2015 the snowpack had lost about 11 inches of SWE. The melt rate followed the average rate with the exception of two storms that added additional snow. The most probable forecast of inflow in May 2015 called for 100 kaf of inflow which was 71 percent of average. This forecast was similar to the April 2015 forecast and still projected that Ruedi Reservoir would physically fill.

Inflow peaked several times in June 2015 but reached its final and highest peak on June 17, 2015 at 1086 cfs. Ruedi Reservoir reached a maximum content for WY2015 of 101,666 AF on July 9, 2015; which was 103 percent of the 30 year average on that day. Releases from Ruedi Reservoir reached a peak of 706 cfs in the middle of June 2015 and averaged 255 cfs from May 2015 through September 2015.

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 participate in CROS operations for WY2015 and released a total of 4,600 AF in early June 2015.

The senior Grand Valley Irrigators call did come on in WY2015 and Ruedi Reservoir was out of priority for several periods. Ruedi Reservoir was in priority and able to store inflow from January 1, 2015 until August 26, 2015, and also for two brief periods between September 3, 2015 through September 20, 2015 and October 26, 2015 through October 31, 2015. While the Grand Valley Irrigators call was active, Ruedi Reservoir was required to make contract and replacement releases to the Colorado River. Ruedi Reservoir released 233 AF of water for out of priority diversions and 3,171 AF for contracts during the periods Ruedi Reservoir was out of priority.

On July 31, 2015 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 24,412 AF was released between July 31, 2015 and October 16, 2015 in WY2015. This total includes 5,000 AF from the firm endangered fish pool, 5,412 AF from the mitigation water pool, 5,000 AF from the 4-out-of-5 fish pool and 9,000 AF of Ute rental water.

Ruedi Reservoir ended WY2015 at a surface elevation of 7,742.64 ft. and 80,772 AF in storage. That volume was 92 percent of average for this date. The total inflow volume for the April 2015 through July 2015 period was 79,780 AF which was 60 percent exceedance of the period of record starting in 1981. Table 1 shows Ruedi Reservoir operations for WY2015. 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 February 2015, March 2015, April 2015, and May 2015 were 64,900 AF, 68,600 AF, 63,000 AF, and 53,000 AF, respectively. Storms after the May 2015 forecast increased the snowpack considerably. A June 2015 forecast came in at 72,300 AF. A total of 72,863 AF of the water diverted through the Boustead Tunnel and 72,205 AF of water was stored during the WY2015, which is 129 percent of average for the period from WY1972 to WY2015 and 136 percent of the May 2015 forecast.

A new rating curve was developed for Boustead Tunnel and applied October 1, 2014. The new rating comes primarily from new methods and tools for measuring discharge at difficult locations. CODWR more frequently relies on the use of hydroacoustic current meters for discharge measurement. The instruments have become more reliable and require substantially less time to conduct a discharge measurement when compared to traditional mechanical current meters. These improvements have aided CODWR efforts to better characterize the discharge-stage relationship at the Boustead Tunnel. Using the revised rating curve, diversions through the tunnel exceeded the 945 cfs design capacity approximately 5 percent of the time (224 hours) between April 2015 and September 2015. The maximum instantaneous discharge measured was 979 cfs.

The Boustead Tunnel outlet experiences higher velocities than specified for the installed Parshall critical depth flume. The higher velocities cause substantial shift from the standard Parshall Flume rating curve. For example, a 570 cfs discharge at Boustead Tunnel results in a stage approximately

0.4 feet less than expected from the rating curve published in the Reclamation Water Measurement Manual. The standard rating curve would indicate a 489 cfs discharge for the same stage. This represents 14 percent underestimation error of the measured discharge prior to the institution of the new rating on October 1, 2014.

The import of project water through the Boustead Tunnel began on April 23, 2015. The maximum mean daily import through Boustead Tunnel was 945 cfs on June 16 and 17, 2015. A portion of the diversion system was shut down in late July and the rest during the week of August 10, 2015. 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 44 years of accumulated imports total 2,229,370 AF, for an average of 52,130 AF per year shown on Table 5. A plot of the Boustead Tunnel imports during WY2015 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 945 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 (TLCC). On October 1, 2014, 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 exchange continued until June 17, 2015. At that point, TLCC stopped the exchange so they could maximize their storage of east slope water. Minimum flows in the Roaring Fork continued to be met. They began exchanging again on July 19, 2015.

There were discussions during the week of June 8, 2015 between the Colorado Division of Natural Resources Divisions 2 and 5, Pitkin County, the Colorado Division of Homeland Security, TLCC and Reclamation regarding increasing the exchange in order to relieve flooding in Pitkin County. Reclamation believed that Pitkin would need to declare an emergency before this should happen. Homeland Security pointed out this might relieve flooding in Pitkin but would increase the flooding forecast on the Arkansas River at Canon City. The Pitkin County Emergency Manager decided not to take action.

High flows on the Roaring Fork caused a gage failure and stages were not recorded after June 2, 2015. After the TLCC exchange began again on July 19, 2015, the flows were assumed to be 4 cfs (the maximum diversion during July) based on the high flows at the Lincoln Creek gage. From August 8 to 11, 2015, Grizzly Reservoir had to be dewatered to diagnose and fix problems so Lincoln Creek was diverted down Roaring Fork. Both the Roaring Fork and Lincoln Creek diversions were measured at Roaring Fork above Lost Man and the appropriate amount was credited to the Exchange. On August 11, 2015, the trans-mountain diversions were stopped and no exchange was recorded. Repairs to Grizzly Reservoir facilities were completed in WY2015.

The total amount of the TLCC exchange was 1,882.35 AF with a net credit to TLCC of 1,866.54 AF. The operating criteria and the monthly summary of the exchange are shown in Appendix C.

D. Turquoise Lake

On September 30, 2014, there were 112,320 AF of water (elevation of 9,859.65 feet) stored in Turquoise Lake, 101 percent of average. Releases made down Lake Fork Creek and to Twin Lakes through the Mt. Elbert Conduit drafted Turquoise Lake to 64,835.84 AF (elevation 9,829.72 ft.), the lowest storage of the water year, by March 23, 2015. The high point for storage was 124,419.55 AF of water (elevation 9,866.6 ft.) on July 21, 2015. At the end of the water year on September 30, 2015 there was 121,234 AF, an elevation 9,864.79 ft., which is 109 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 WY2015.

Homestake Reservoir repairs were completed in 2014. The reservoir completed filling in 2015. After filling, 4,183.2 AF was imported through Homestake Tunnel to the account in Turquoise Reservoir.

Busk-Ivanhoe imports through the Carlton Tunnel stored totaled 2,245.8 AF. Pueblo Board of Water Works (BWWP) received 2,086.6 AF of the imports and the City of Aurora received 339.2 AF.

Project water imports through the Boustead Tunnel totaled 72,864 AF with 72,205 AF stored.

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 WY2015, 77,557 AF of water was released from Turquoise Lake through the Sugarloaf Powerplant; 9,207 AF of water was bypassed around the powerplant; and 10,070 AF of water was diverted from Halfmoon Creek and was conveyed through the Mt. Elbert Conduit to the Mt. Elbert Forebay, and subsequently to Twin Lakes through the Mt. Elbert Power Plant. An additional 3,911 AF of water was 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 120,776 AF and in Mt. Elbert Forebay was 8,687 AF of water (Twin Lakes elevation 9192.27 ft. and Mt. Elbert Forebay elevation 9636.47 ft.) on September 30, 2014, which was 106 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 native inflow of 8,030 AF was stored in the Twin Lakes Canal Company (TLCC) storage space from November 15, 2014 through March 15, 2015 as winter water storage. A total of 20,302 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.

The Twin Lakes/Mt. Elbert Forebay combined water storage reached a low point of 108,863 AF on May 8, 2015, and was at its high point of 142,085 on July 27, 2015. On September 30, 2015, Twin Lakes held 123,202 AF (elevation 9193.26 ft.) and Mt. Elbert Forebay held 8,764 AF (elevation 9636.77 ft.), the combined total of which was 109 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 WY2015.

Colorado Division of Water Resources (CODWR) determines the amount of water trapped as bank storage in ice before March 15, 2015 that will be credited to the TLCC as winter water. The amount of 168 AF 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.

High native flows on the Arkansas River brought Twin Lakes Canal Company (TLCC) into priority from May 8, 2015 to May 13, 2015 when they began to store native inflows from Lake Creek along with Twin Lakes Tunnel imports. At this time, the limitations of the Lake Creek above Twin Lakes (LAKATLCO) gaging station became apparent. The gage is sited on an area of the creek prone to reshaping from flows. In addition, it cannot be safely rated at flows between 250 cfs and 1,000 cfs. Rather than use gaged inflows, the change in the admin account was credited to TLCC. TLCC east slope water rights came into priority again on May 19, 2015. Imports through Twin Lakes Tunnel were reduced beginning June 3, 2015 to allow TLCC to take advantage of their east slope water rights. Storing the native flows brought the total account storage to its maximum of 54,452 AF on June 13, 2015. The imports through the tunnel were stopped completely on June 17, 2015. On the same day, TLCC stopped exchanging flows with Lincoln Creek and Grizzly Reservoir on the west slope.

Little demand from account holders in Pueblo Reservoir kept project water in the upper two reservoirs so as not to push out excess capacity accounts in Pueblo. Work done on Twin Lakes dam in 2014 required a "first fill" internal alert at pool elevation 9192.2 ft. The combined TLCC and project storage pushed Twin Lakes into an internal alert on July 8, 2014. This lasted into WY2016.

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 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, 2015 to August 15, 2015 if the flow at Wellsville

is below 700 cfs. High native flows and releases by other entities kept Colorado Department of Parks and Wildlife from calling for the water this year.

A total of 290,750 megawatt hours of energy was generated at the powerplant, with 897,000 AF of water; 97,439 AF came through the Mt. Elbert Conduit; and 783,369 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 WY2015.

G. Pueblo Reservoir

The water storage content of Pueblo Reservoir was 189,065 AF (elevation 4,866.42 ft.) on September 30, 2015, 140 percent of average. The reservoir reached a high point in storage of 289,666 AF (elevation 4887.34 ft.) on June 21, 2015 and a low point on November 2, 2014 at 171,141 AF (elevation 4859.06 ft.).

A total of 49,966 AF of native inflow was stored in the reservoir under the Pueblo Reservoir winter water storage program between November 15, 2014 and March 14, 2015. This program allows agricultural entities to store native flows during the winter to be used during irrigation season. On March 15, 2015, it was distributed to agricultural entities.

Winter water stored in off-stream reservoirs were in danger of spilling from the high inflows in May. CO DWR requested the Reclamation allow the water in the reservoirs below Pueblo be allowed to be exchanged back into winter water accounts in Pueblo. Reclamation agreed to this exchange, noting the payment for winter water storage is based on the highest storage content during the water year and that any water stored through exchange would have to be released before April 15, 2016 so as not to affect other spill priorities. A total of 2,438 AF was exchanged. After March 15, 2015, 29,705 AF of winter water and 12,150 AF of winter water carryover were released.

Heavy storms increased the flow at Avondale (ARKAVOCO) and the gage was forecast to exceed the internal alert threshold of 6,000 cfs on May 8, 2015. The threshold was exceeded May 11, 2015. The Colorado Department of Natural Resources (CO DWR) requested Pueblo Dam cut releases to mitigate downstream flooding. The stored flood waters were released by May 14, 2015 and the alert was canceled.

On May 19, 2015, a second internal alert was declared when Pueblo Dam began storing flood waters to reduce the stage at Avondale. This alert continued until flood storage was fully released on June 2, 2015.

High flows at Avondale caused a third internal alert at Pueblo Dam beginning June 11, 2015. The dam began storing flood waters at the request of CO DWR to mitigate flooding at Avondale. Storing the flood waters caused Pueblo Reservoir to enter the flood control pool on June 12, 2015. Upon entering the flood control pool, oversight of operations passed from CO DWR to the Corps of Engineers (USACE). USACE operated to keep the gage at ARKAVOCO below 6,000 cfs, cutting the releases from Pueblo Dam to minimum to help control a 10,000 cfs increase in flow from Fountain Creek on June 16, 2015. On June 19, 2015, after the flood crest had passed, USACE authorized releases from Pueblo Reservoir to cause the gage at Avondale to exceed 6,000 cfs. A

Level 1 Alert was declared. The Alert remained in place until June 29, 2015 when USACE began to decrease the releases so as to keep ARKAVOCO below 6,000 cfs. The pool elevation receded below the top of conservation, 4880.46 ft., on July 6, 2015. At that point, operational control reverted to CO DWR. The internal alert remained in effect until flood storage had been released on July 8, 2015. At that time, the forecast was for significant rain. It was decided to leave the alert in place until the precipitation forecast had decreased. The alert was canceled on July 10, 2015.

Increasing the flows from Pueblo Reservoir to evacuate the flood storage after the flood inflows from Fountain Creek had subsided caused ARKAVOCO to reach as high as 7,010 cfs. USACE, CO DWR and Reclamation monitored downstream effects from the dam to La Junta, CO. There were reports of flooding in structures in Avondale and Boone but none were determined to be from the mainstem flows.

Work was done on the concrete spillway at Pueblo Reservoir in 2002 and the first fill for that area was set at 4886.0 ft. This was reached and 24-hour monitoring commenced on June 18, 2002. This lasted until the elevation receded below 4886.0 FT on June 26, 2002.

Table 9 and Exhibit 19 depict Pueblo Reservoir monthly operations during the 2015 water year. The 2013-2015 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 4 long term storage contracts for a total of 42,416 AF of non-project storage in Turquoise Lake, one contract for 54,452 AF in Twin Lakes and six contracts for 47,750 AF in Pueblo Reservoir.

Twenty-seven contracts totaling 57,484 AF were interim, 1-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.

I. Project Water Sales and Deliveries

There were 51,784 AF of Fryingpan-Arkansas Project water made available to the Southeastern Colorado Water Conservancy District during WY2015 for initial allocation. A second allocation of 2,633 AF was made available in September. The District entities called for 47,885 AF of project and 12,124 AF project carryover water during the year.

Evaporation reduced the project carryover water in storage by 7,520 AF. By the end of the water year (September 30, 2015), the District had 28,762 AF of 2015 allocated water and 116,576 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. A sediment survey completed in 2012 at Pueblo Reservoir estimated that 11,566 AF of storage capacity was lost to sediment accumulation. The revised reservoir storage allocation data for Pueblo Reservoir are also presented in Table 10. The revised storage allocations for Pueblo Reservoir will become effective on October 1, 2015, the start of WY 2016.

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 WY2015 prevented \$1,402,300 of flood damages. Since impoundment, Ruedi Reservoir has prevented a total of \$19,718,700 (unadjusted for inflation) in potential flood damages.

The Army Corps of Engineers estimated that the operations at Pueblo Reservoir prevented \$4,493,000 of flood damages during WY2015. Since impoundment, Pueblo Reservoir has prevented a total of \$36,785,000 (unadjusted for inflation) in potential flood damages.

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

1. Ruedi Reservoir Operations WY2015

Fryingpan-Arkansas Project

Unit: 1,000 AF

Month	Inflow	Evaporation	Outflow	End of Month Content	Water Surface Elevation (msl)
OCT 2014	5.1	0.1	5.5	87.4	7750.17
NOV 2014	4.5	0	5.2	86.7	7749.45
DEC 2014	3.8	0	5.5	85.0	7747.57
JAN 2015	2.9	0	6.3	81.6	7743.64
FEB 2015	3.4	0	6.8	78.2	7739.60
MAR 2015	6.4	0	9.9	74.7	7735.42
APR 2015	9.4	0	8.2	75.9	7736.84
MAY 2015	18.1	0.2	9.4	84.3	7746.72
JUN 2015	39.2	0.6	21.6	101.3	7764.92
JUL 2015	14.1	0.6	13.9	100.9	7764.58
AUG 2015	7.9	0.4	16.8	91.7	7754.91
SEP 2015	5.1	0.2	15.8	80.8	7742.66
<hr/>					
Total* (AF)	119,934	2,118	124,954		

*Rounding may introduce discrepancies between monthly and yearly totals

2. Ruedi Reservoir Releases for Contracts WY2015
 Fryingpan-Arkansas Project
 Unit: AF

Month	Round 1	Round 2 Nonfish	Round 2 Fish
OCT-2014			
NOV-2014			
DEC-2014			
JAN-2015			
FEB-2015			
MAR-2015			
APR-2015			
MAY-2015			
JUN-2015			
JUL-2015			74
AUG-2015	65	401	9,699
SEP-2015	115	778	9,798
OCT-2015	180	1,632	4,841
Total	360	2,811	24,412

3. Ruedi Reservoir Releases for Endangered Fish WY2015

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2015
 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)
WED	4/1/2015	7,735.46	74,753	4,295	0	186	8	194	N	39	0	0	2,102
THU	4/2/2015	7,735.43	74,729	160	0	172	8	180	N	39	0	0	2,058
FRI	4/3/2015	7,735.50	74,786	152	0	123	8	131	N	39	0	0	1,981
SAT	4/4/2015	7,735.53	74,810	136	0	123	8	132	N	39	0	0	1,757
SUN	4/5/2015	7,735.50	74,786	123	0	135	7	142	N	39	0	0	1,580
MON	4/6/2015	7,735.52	74,802	145	0	136	5	141	N	39	0	0	1,389
TUE	4/7/2015	7,735.55	74,826	148	0	136	5	141	N	39	0	0	1,221
WED	4/8/2015	7,735.58	74,851	148	0	136	5	141	N	39	0	0	1,237
THU	4/9/2015	7,735.64	74,900	161	0	136	5	141	N	39	0	0	1,333
FRI	4/10/2015	7,735.67	74,924	148	0	136	5	141	N	39	0	0	1,299
SAT	4/11/2015	7,735.70	74,949	148	0	136	5	141	N	39	0	0	1,260
SUN	4/12/2015	7,735.72	74,965	144	0	136	5	141	N	39	0	0	1,205
MON	4/13/2015	7,735.76	74,998	152	0	136	5	141	N	39	0	0	1,161
TUE	4/14/2015	7,735.84	75,063	169	0	136	5	141	N	39	0	0	1,114
WED	4/15/2015	7,735.99	75,186	197	0	135	6	141	N	39	0	0	1,177
THU	4/16/2015	7,736.07	75,251	168	0	135	6	141	N	39	0	0	1,396
FRI	4/17/2015	7,736.23	75,383	201	0	135	6	141	N	39	0	0	1,538
SAT	4/18/2015	7,736.28	75,424	156	0	135	6	141	N	39	0	0	1,874
SUN	4/19/2015	7,736.34	75,473	160	0	135	7	142	N	39	0	0	1,907
MON	4/20/2015	7,736.38	75,506	152	0	135	7	142	N	39	0	0	1,779
TUE	4/21/2015	7,736.39	75,514	140	0	135	7	142	N	39	0	0	1,536
WED	4/22/2015	7,736.42	75,539	147	0	135	6	141	N	39	0	0	1,409
THU	4/23/2015	7,736.45	75,563	147	0	135	6	141	N	39	0	0	1,326
FRI	4/24/2015	7,736.49	75,596	151	0	135	6	141	N	39	0	0	1,282
SAT	4/25/2015	7,736.54	75,637	156	0	135	6	141	N	39	0	0	1,251
SUN	4/26/2015	7,736.56	75,654	143	0	135	6	141	N	39	0	0	1,360
MON	4/27/2015	7,736.59	75,678	147	0	134	7	141	N	39	0	0	1,395
TUE	4/28/2015	7,736.60	75,687	140	0	135	6	141	N	39	0	0	1,364
WED	4/29/2015	7,736.70	75,769	176	0	135	7	141	N	39	0	0	1,233
THU	4/30/2015	7,736.84	75,884	194	0	136	6	142	N	39	0	0	1,307
Averages		7,736.04	75,230	293	0	137	6	144		39	0		1,461
Totals (acft)				17,461	0	8,180	368	8,549		2,321	0	0	86,934

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 24,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2015

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2015
 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 BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
FRI	5/1/2015	7,736.97	75,991	197	7	136	6	142	N	110	0	0	1,633
SAT	5/2/2015	7,737.25	76,222	260	7	136	7	143	N	110	0	0	2,066
SUN	5/3/2015	7,737.51	76,437	251	7	136	8	144	N	110	0	0	2,619
MON	5/4/2015	7,737.79	76,669	260	7	136	9	144	N	110	0	0	3,418
TUE	5/5/2015	7,738.07	76,901	255	7	131	14	146	N	110	0	0	3,767
WED	5/6/2015	7,738.65	77,383	388	7	137	11	148	N	110	0	0	5,516
THU	5/7/2015	7,739.13	77,784	347	7	138	13	151	N	110	0	0	7,424
FRI	5/8/2015	7,739.49	78,086	298	7	139	14	153	N	110	0	0	6,635
SAT	5/9/2015	7,739.88	78,413	311	7	139	14	153	N	110	0	0	6,486
SUN	5/10/2015	7,740.22	78,699	290	7	139	15	153	N	110	0	0	6,651
MON	5/11/2015	7,740.54	78,969	282	7	139	15	153	N	110	0	0	6,487
TUE	5/12/2015	7,740.86	79,239	283	7	139	14	153	N	110	0	0	6,095
WED	5/13/2015	7,741.20	79,527	293	7	140	13	153	N	110	0	0	5,881
THU	5/14/2015	7,741.53	79,807	288	7	140	13	153	N	110	0	0	5,644
FRI	5/15/2015	7,741.85	80,080	285	7	140	13	153	N	110	0	0	5,723
SAT	5/16/2015	7,742.15	80,335	276	7	140	14	154	N	110	0	0	5,841
SUN	5/17/2015	7,742.48	80,618	290	7	140	14	154	N	110	0	0	5,566
MON	5/18/2015	7,742.79	80,883	281	7	140	13	153	N	110	0	0	5,454
TUE	5/19/2015	7,743.16	81,201	308	7	140	13	153	N	110	0	0	5,802
WED	5/20/2015	7,743.51	81,502	300	7	141	13	154	N	110	0	0	6,101
THU	5/21/2015	7,743.82	81,770	279	7	137	13	150	N	110	0	0	5,952
FRI	5/22/2015	7,744.12	82,029	313	7	175	13	188	N	110	0	0	6,069
SAT	5/23/2015	7,744.37	82,246	304	7	187	14	201	N	110	0	0	6,780
SUN	5/24/2015	7,744.60	82,446	296	7	188	15	202	N	110	0	0	6,988
MON	5/25/2015	7,744.86	82,672	307	7	185	15	200	N	110	0	0	7,462
TUE	5/26/2015	7,745.12	82,898	305	7	184	15	199	N	110	0	0	7,492
WED	5/27/2015	7,745.37	83,116	302	7	184	15	200	N	110	0	0	7,724
THU	5/28/2015	7,745.67	83,378	322	8	183	16	198	N	110	0	0	8,161
FRI	5/29/2015	7,745.99	83,659	333	8	184	17	202	N	110	0	0	8,755
SAT	5/30/2015	7,746.31	83,939	333	8	184	19	203	N	110	0	0	9,329
SUN	5/31/2015	7,746.72	84,300	374	8	185	21	205	N	110	0	0	9,779
Averages		7,742.00	80,232	297	7	153	13	166		110	0		6,107
Totals (acft)				18,269	450	9,404	829	10,232		6,764	0	0	375,481

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 24,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2015

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2015
 June

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL RESERVOIR RELEASE (CFS)	ROCKY FORK CREEK (CFS)	FRYINGPAN	RUEDI	REQUIRED	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADI GAGE (CFS)
								RIVER GAGE BELOW DAM (CFS)	CALLED OUT? (Y= YES) (N= NO)	MIN FLOW BELOW RUEDI w/o FISH REL (CFS)			
MON	6/1/2015	7,747.31	84,820	474	19	194	26	219	N	110	0	0	10,853
TUE	6/2/2015	7,747.89	85,333	570	19	293	36	329	N	110	0	0	12,638
WED	6/3/2015	7,748.57	85,937	659	19	336	42	378	N	110	0	0	14,249
THU	6/4/2015	7,749.10	86,410	681	19	424	45	469	N	110	0	0	15,172
FRI	6/5/2015	7,749.50	86,768	710	19	511	47	558	N	110	0	0	15,661
SAT	6/6/2015	7,749.83	87,063	742	19	574	47	621	N	110	0	0	16,186
SUN	6/7/2015	7,750.13	87,333	626	19	471	45	516	N	110	0	0	16,282
MON	6/8/2015	7,750.69	87,837	593	19	320	44	365	N	110	0	0	15,614
TUE	6/9/2015	7,751.59	88,651	663	19	233	45	279	N	110	0	0	15,451
WED	6/10/2015	7,752.94	89,882	839	19	199	48	247	N	110	0	0	15,861
THU	6/11/2015	7,754.45	91,272	909	19	189	52	241	N	110	0	0	16,761
FRI	6/12/2015	7,755.94	92,656	933	20	215	53	268	N	110	0	0	18,964
SAT	6/13/2015	7,757.15	93,791	830	20	238	51	289	N	110	0	0	18,561
SUN	6/14/2015	7,758.18	94,765	748	20	237	49	286	N	110	0	0	17,906
MON	6/15/2015	7,759.07	95,611	685	20	238	46	284	N	110	0	0	16,956
TUE	6/16/2015	7,760.15	96,645	780	20	238	46	283	N	110	0	0	16,206
WED	6/17/2015	7,761.78	98,219	1,101	20	287	49	335	N	110	0	0	17,330
THU	6/18/2015	7,762.65	99,067	982	21	535	48	582	N	110	0	0	18,947
FRI	6/19/2015	7,762.83	99,243	815	21	706	48	754	N	110	0	0	18,195
SAT	6/20/2015	7,762.97	99,380	796	21	707	45	752	N	110	0	0	17,517
SUN	6/21/2015	7,762.98	99,389	729	21	703	42	746	N	110	0	0	16,875
MON	6/22/2015	7,762.86	99,272	621	21	660	39	698	N	110	0	0	16,121
TUE	6/23/2015	7,762.90	99,311	544	21	504	35	539	N	110	0	0	15,150
WED	6/24/2015	7,763.20	99,605	494	21	325	33	358	N	110	0	0	14,023
THU	6/25/2015	7,763.53	99,928	419	21	236	30	266	N	110	0	0	12,928
FRI	6/26/2015	7,763.84	100,233	410	21	235	28	263	N	110	0	0	11,565
SAT	6/27/2015	7,764.14	100,529	406	21	236	26	262	N	110	0	0	10,551
SUN	6/28/2015	7,764.44	100,824	407	21	237	24	261	N	110	0	0	9,833
MON	6/29/2015	7,764.69	101,072	382	21	237	22	259	N	110	0	0	8,711
TUE	6/30/2015	7,764.92	101,299	373	21	237	21	258	N	110	0	0	8,300
Averages		7,757.67	94,405	664	20	358	40	399		110	0		14,979
Totals (acft)				39,513	1,183	21,330	2,400	23,730		6,546	0	0	891,322

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 24,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2015

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2015
 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)
WED	7/1/2015	7,764.99	101,369	291	19	238	20	258	N	110	0	0	7,755
THU	7/2/2015	7,765.06	101,438	294	19	240	17	257	N	110	0	0	7,310
FRI	7/3/2015	7,765.05	101,428	254	19	241	16	256	N	110	0	0	7,056
SAT	7/4/2015	7,765.04	101,418	254	19	240	15	255	N	110	0	0	6,665
SUN	7/5/2015	7,765.04	101,418	258	19	239	14	254	N	110	0	0	6,413
MON	7/6/2015	7,765.09	101,468	284	19	240	14	254	N	110	0	0	6,163
TUE	7/7/2015	7,765.15	101,527	289	19	240	13	253	N	110	0	0	6,223
WED	7/8/2015	7,765.23	101,607	299	19	240	14	254	N	110	0	0	6,507
THU	7/9/2015	7,765.29	101,666	291	19	242	15	257	N	110	0	0	7,116
FRI	7/10/2015	7,765.25	101,626	277	19	278	14	293	N	110	0	0	7,401
SAT	7/11/2015	7,765.10	101,478	232	19	288	14	302	N	110	0	0	7,137
SUN	7/12/2015	7,764.91	101,289	213	19	289	13	302	N	110	0	0	6,525
MON	7/13/2015	7,764.79	101,171	210	19	252	12	264	N	110	0	0	5,779
TUE	7/14/2015	7,764.96	101,339	298	19	194	11	206	N	110	0	0	5,172
WED	7/15/2015	7,765.05	101,428	257	19	193	11	205	N	110	0	0	4,998
THU	7/16/2015	7,765.06	101,438	218	19	194	11	205	N	110	0	0	4,966
FRI	7/17/2015	7,765.07	101,448	218	19	194	11	205	N	110	0	0	4,519
SAT	7/18/2015	7,765.10	101,478	228	19	194	10	204	N	110	0	0	4,195
SUN	7/19/2015	7,765.10	101,478	213	19	194	10	204	N	110	0	0	4,269
MON	7/20/2015	7,765.12	101,498	229	19	200	10	210	N	110	0	0	4,143
TUE	7/21/2015	7,765.23	101,607	273	19	199	11	210	N	110	0	0	3,747
WED	7/22/2015	7,765.25	101,626	239	19	210	12	222	N	110	0	0	4,102
THU	7/23/2015	7,765.19	101,567	215	19	226	10	237	N	110	0	0	3,725
FRI	7/24/2015	7,765.15	101,527	224	19	226	10	236	N	110	0	0	3,215
SAT	7/25/2015	7,765.13	101,507	234	19	225	11	236	N	110	0	0	2,809
SUN	7/26/2015	7,765.07	101,448	213	19	224	12	236	N	110	0	0	2,706
MON	7/27/2015	7,764.98	101,359	198	19	224	12	236	N	110	0	0	2,504
TUE	7/28/2015	7,764.87	101,250	189	19	225	10	235	N	110	0	0	2,156
WED	7/29/2015	7,764.78	101,160	183	19	210	9	218	N	110	0	0	1,899
THU	7/30/2015	7,764.71	101,091	185	19	202	7	209	N	110	0	0	1,519
FRI	7/31/2015	7,764.58	100,963	180	19	226	7	232	N	110	38	74	1,337
Averages		7,765.04	101,423	240	19	227	12	239		110	1		4,840
Totals (acft)				14,754	1,153	13,937	746	14,683		6,764	74	74	297,581

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 24,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2015

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2015
 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)
SAT	8/1/2015	7,764.40	100,785	156	13	233	6	239	N	110	75	223	1,168
SUN	8/2/2015	7,764.26	100,647	176	13	232	6	238	N	110	100	421	996
MON	8/3/2015	7,764.03	100,420	158	13	259	6	265	N	110	100	620	1,111
TUE	8/4/2015	7,763.74	100,135	141	13	272	6	278	N	110	150	917	1,374
WED	8/5/2015	7,763.44	99,840	136	13	272	6	278	N	110	150	1215	1,219
THU	8/6/2015	7,763.14	99,546	148	13	282	6	289	N	110	175	1,562	1,137
FRI	8/7/2015	7,762.82	99,233	155	13	299	6	305	N	110	175	1,909	1,112
SAT	8/8/2015	7,762.48	98,901	146	13	300	6	306	N	110	175	2,256	1,001
SUN	8/9/2015	7,762.12	98,550	136	13	300	6	305	N	110	175	2,603	979
MON	8/10/2015	7,761.74	98,181	127	13	300	5	305	N	110	175	2,950	989
TUE	8/11/2015	7,761.43	97,880	146	13	284	5	290	N	110	175	3,298	946
WED	8/12/2015	7,761.19	97,648	163	13	267	5	273	N	110	165	3,625	886
THU	8/13/2015	7,760.92	97,387	150	13	268	5	273	N	110	165	3,952	979
FRI	8/14/2015	7,760.71	97,184	179	13	268	5	273	N	110	165	4,279	992
SAT	8/15/2015	7,760.46	96,943	159	13	267	5	272	N	110	165	4,607	1,019
SUN	8/16/2015	7,760.18	96,674	145	13	268	5	273	N	110	165	4,934	1,013
MON	8/17/2015	7,759.97	96,472	179	13	267	5	272	N	110	165	5,261	1,071
TUE	8/18/2015	7,759.67	96,184	134	13	266	5	271	N	110	165	5,589	1,047
WED	8/19/2015	7,759.35	95,878	124	13	265	5	270	N	110	165	5,916	960
THU	8/20/2015	7,759.01	95,554	115	13	266	4	270	N	110	165	6,243	906
FRI	8/21/2015	7,758.68	95,240	119	13	265	5	270	N	110	165	6,570	850
SAT	8/22/2015	7,758.33	94,907	110	13	265	5	269	N	110	165	6,898	777
SUN	8/23/2015	7,757.98	94,575	110	13	265	5	269	N	110	165	7,225	667
MON	8/24/2015	7,757.62	94,234	106	13	265	4	269	N	110	165	7,552	682
TUE	8/25/2015	7,757.24	93,876	97	13	265	4	269	N	101	165	7,879	658
WED	8/26/2015	7,756.89	93,546	112	13	265	4	269	Y	116	130	8,137	605
THU	8/27/2015	7,756.52	93,199	126	13	288	4	292	Y	129	165	8,465	791
FRI	8/28/2015	7,756.13	92,834	131	13	302	4	306	Y	135	165	8,792	1,277
SAT	8/29/2015	7,755.72	92,451	121	13	301	4	305	Y	125	165	9,119	1,435
SUN	8/30/2015	7,755.29	92,050	106	13	295	4	299	Y	110	165	9,446	1,100
MON	8/31/2015	7,754.91	91,698	130	13	295	4	299	Y	134	165	9,774	1,197
Averages		7,760.01	96,537	137	13	274	5	279		113	158		998
Totals (acft)				8,412	803	16,874	308	17,182		6,923	9,699	9,774	61,375

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 24,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2015

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2015
 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)
TUE	9/1/2015	7,754.50	91,318	110	8	294	4	298	Y	114	130	10,032	1,047
WED	9/2/2015	7,754.07	90,920	101	8	294	4	298	Y	105	130	10,289	1,079
THU	9/3/2015	7,753.74	90,617	141	8	286	4	290	N	110	170	10,627	1,111
FRI	9/4/2015	7,753.45	90,350	144	8	270	4	274	N	110	170	10,964	1,168
SAT	9/5/2015	7,753.19	90,111	159	8	272	4	276	N	110	170	11,301	1,404
SUN	9/6/2015	7,752.89	89,836	141	8	272	4	276	N	110	170	11,638	1,540
MON	9/7/2015	7,752.57	89,544	132	8	272	4	276	N	110	170	11,975	1,577
TUE	9/8/2015	7,752.24	89,243	127	8	271	4	275	N	110	170	12,313	1,626
WED	9/9/2015	7,751.88	88,915	114	8	272	4	276	N	110	170	12,650	1,475
THU	9/10/2015	7,751.50	88,570	105	8	271	4	275	N	109	170	12,987	1,318
FRI	9/11/2015	7,751.12	88,226	104	7	270	4	274	N	108	170	13,324	1,204
SAT	9/12/2015	7,750.73	87,873	98	7	268	5	272	N	102	170	13,661	993
SUN	9/13/2015	7,750.33	87,513	93	7	267	4	272	N	97	170	13,999	906
MON	9/14/2015	7,749.94	87,162	97	7	267	5	271	N	102	170	14,336	940
TUE	9/15/2015	7,749.61	86,866	124	7	266	5	271	N	110	170	14,673	1,168
WED	9/16/2015	7,749.23	86,526	102	7	266	4	270	N	106	170	15,010	1,386
THU	9/17/2015	7,748.84	86,178	97	7	266	4	270	N	101	170	15,347	1,537
FRI	9/18/2015	7,748.43	85,813	89	7	265	4	269	N	93	170	15,685	1,403
SAT	9/19/2015	7,748.02	85,449	89	7	265	4	269	N	93	170	16,022	1,268
SUN	9/20/2015	7,747.60	85,076	85	7	265	4	269	N	89	170	16,359	1,147
MON	9/21/2015	7,747.18	84,705	85	7	265	4	269	Y	89	160	16,676	1,133
TUE	9/22/2015	7,746.73	84,308	87	7	280	3	284	Y	91	160	16,994	1,059
WED	9/23/2015	7,746.22	83,860	74	7	293	5	298	Y	79	160	17,311	1,061
THU	9/24/2015	7,745.72	83,422	83	7	296	5	302	Y	88	160	17,628	997
FRI	9/25/2015	7,745.22	82,985	82	7	295	5	300	Y	87	160	17,946	912
SAT	9/26/2015	7,744.72	82,550	82	7	294	5	300	Y	87	160	18,263	1,033
SUN	9/27/2015	7,744.21	82,107	79	7	295	5	300	Y	84	160	18,580	1,064
MON	9/28/2015	7,743.70	81,666	81	7	296	5	301	Y	86	160	18,898	1,099
TUE	9/29/2015	7,743.19	81,227	81	7	296	5	301	Y	86	170	19,235	984
WED	9/30/2015	7,742.66	80,772	73	7	296	5	301	Y	78	170	19,572	1,027
Averages		7,749.11	86,457	102	7	278	4	282			165		1,189
Totals (acft)				6,062	440	16,547	261	16,808			9,798	19,572	70,747

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 24,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish WY2015

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2015
 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)
THU	10/1/2015	7,742.15	80,335	80	3	297	3	300	Y	83	170	19,909	997
FRI	10/2/2015	7,741.64	79,901	80	3	296	3	299	Y	83	170	20,247	900
SAT	10/3/2015	7,741.13	79,468	79	3	295	3	298	Y	82	170	20,584	938
SUN	10/4/2015	7,740.61	79,028	74	3	293	5	298	Y	78	170	20,921	854
MON	10/5/2015	7,740.09	78,589	73	3	291	5	296	Y	78	170	21,258	913
TUE	10/6/2015	7,739.47	78,069	34	3	294	4	297	Y	38	170	21,595	1,025
WED	10/7/2015	7,738.97	77,650	86	3	294	3	297	Y	88	170	21,933	1,047
THU	10/8/2015	7,738.46	77,225	82	3	294	3	296	Y	85	170	22,270	1,105
FRI	10/9/2015	7,737.94	76,793	78	3	293	3	297	Y	81	170	22,607	1,142
SAT	10/10/2015	7,737.41	76,354	75	3	294	3	297	Y	78	170	22,944	1,104
SUN	10/11/2015	7,736.87	75,909	71	3	293	3	297	Y	75	170	23,281	1,074
MON	10/12/2015	7,736.34	75,473	75	3	293	3	296	Y	79	170	23,619	1,061
TUE	10/13/2015	7,735.87	75,088	70	3	262	3	265	Y	73	160	23,936	1,034
WED	10/14/2015	7,735.49	74,778	74	3	228	3	231	Y	77	120	24,174	1,002
THU	10/15/2015	7,735.24	74,574	71	3	171	3	175	Y	75	70	24,313	953
FRI	10/16/2015	7,735.11	74,468	62	3	113	3	116	Y	65	50	24,412	953
SAT	10/17/2015	7,735.02	74,395	62	3	96	3	99	Y	65	0	24,412	908
SUN	10/18/2015	7,734.94	74,330	66	3	96	3	99	Y	69	0	24,412	877
MON	10/19/2015	7,734.86	74,265	66	3	96	3	99	Y	69	0	24,412	930
TUE	10/20/2015	7,734.80	74,216	74	3	96	3	99	Y	77	0	24,412	1,155
WED	10/21/2015	7,734.71	74,143	61	3	96	3	99	Y	65	0	24,412	1,173
THU	10/22/2015	7,734.69	74,127	91	3	96	3	100	Y	94	0	24,412	1,345
FRI	10/23/2015	7,734.70	74,135	103	3	96	3	99	Y	106	0	24,412	1,511
SAT	10/24/2015	7,734.65	74,094	78	3	96	3	99	Y	81	0	24,412	1,543
SUN	10/25/2015	7,734.60	74,054	78	3	96	3	99	Y	81	0	24,412	1,546
MON	10/26/2015	7,734.57	74,029	79	3	89	3	93	N	83	0	24,412	1,599
TUE	10/27/2015	7,734.57	74,029	71	3	68	3	72	N	74	0	24,412	1,624
WED	10/28/2015	7,734.57	74,029	59	3	57	3	60	N	62	0	24,412	1,580
THU	10/29/2015	7,734.60	74,054	66	3	51	3	54	N	69	0	24,412	1,533
FRI	10/30/2015	7,734.58	74,038	64	3	69	3	72	N	66	0	24,412	1,560
SAT	10/31/2015	7,734.55	74,013	59	3	69	3	72	N	62	0	24,412	1,593
Averages		7,736.55	75,666	72	3	180	3	183			79		1,180
Totals (acft)				4,441	156	11,044	200	11,244			4,840	24,411.93	72,558

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/16. A total of 24,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

4. Fryingpan-Arkansas Project Transmountain Diversions WY2015

Fryingpan-Arkansas Project

Unit: AF

	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
South Fork	14	807	7418	2009	161	0	10409
No Name	0	165	2222	184	165	0	2735
Hunter	0	145	928	0	0	0	928
Midway	0	365	4286	752	0	0	5403
Sawyer	0	99	1593	446	48	0	2186
Chapman ¹	69	1511	13894	2817	175	0	18466
Subtotal	89	3094	30651	6333	385	0	40553
Carter	10	391	2325	1073	0	0	3798
North Fork	2	40	1008	347	0	0	1396
Mormon	0	442	2813	714	12	0	3981
North Cunningham	2	262	1295	226	2	0	1787
Middle Cunningham	0	137	1870	369	2	0	2378
Ivanhoe	99	1073	6758	1492	48	0	9469
Granite	0	198	1724	490	56	0	2467
Fryingpan	30	1583	11389	3745	192	0	16939
Lily Pad	28	212	821	141	16	0	1218
Subtotal	175	4338	30000	8595	327	0	43435
Total	264	7432	60651	14928	712	0	83987
Boustead Tunnel	413	6912	50557	13323	696	169	72070

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

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
2015	72.2	2293.7	1.9	67.9

Restriction: Not to exceed 120 KAF in 1 year

Not to exceed 2,352.8 KAF AF in 34 consecutive years.

The imports between 1982 and 2015 are 1922.1 KAF

1983 includes 3,120 AF imported through the Twin Lakes Tunnel

6. Turquoise Lake Operations WY2015

Fryingpan-Arkansas Project

Unit: 1,000 AF

Month	Busk-Ivanhoe Imports through Carlton Tunnel	Busk-Ivanhoe Imports through Boustead Tunnel	Imports through Homestake Tunnel	Project Imports	Native Inflow	Total Inflow	Evap	Total Outflow	End of Month Content	Water Surface Elevation (feet msl)
OCT 2014	0.1	0	0	0.2	0.6	0.9	0.4	1.3	111.5	9859.17
NOV 2014	0.1	0	0	0.1	1.1	1.3	0.1	7.7	105.0	9855.34
DEC 2014	0.1	0	0	0.2	1.6	1.8	0	16.3	90.5	9846.55
JAN 2015	0.1	0	0	0.1	1.7	1.9	0	11.5	80.8	9840.46
FEB 2015	0.1	0	0	0.1	0.9	1.0	0	6.2	75.6	9837.07
MAR 2015	0.1	0	0	0.1	1.3	1.5	0	12.2	65.0	9829.81
APR 2015	0.1	0	0	0.3	1.8	2.2	0	1.5	65.7	9830.32
MAY 2015	0.4	0	0	6.8	5.5	12.6	0.2	11.9	66.3	9830.72
JUN 2015	1.1	0	4.2	50.4	15.8	71.5	0.7	21.1	116.0	9861.78
JUL 2015	0.2	0	0	13.3	4.9	18.2	0.5	10.6	123.1	9865.85
AUG 2015	0.1	0	0	0.6	0.8	1.6	0.6	1.5	122.5	9865.53
SEP 2015	0.1	0	0	0	0.3	0.4	0.4	1.2	121.2	9864.79
<hr/>										
Total* (AF)	2,428	0	4,173	72,206	36,174	114,911	2,957	103,040		

*Rounding may introduce discrepancies between monthly and yearly totals

7. Twin Lakes/Mt. Elbert Forebay Water Year 2015 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 ⁴	Halfmoon	Sugarloaf Bypass	Sugarloaf Powerplant	Native Inflow	Total Inflow	Evap ²	Total Outflow	End of Month Content ²	Water Elevation ³ (feet msl)
OCT 2014	2.4	0.0	0.0	0.3	0.4	0.4	0.0	3.7	6.8	0.7	6.0	129.6	9192.13
NOV 2014	1.2	0.2	0.0	0.3	0.0	0.4	6.8	2.0	10.3	0.2	12.8	126.8	9191.64
DEC 2014	0.7	3.0	0.0	0.3	0.0	0.4	15.4	0.8	17.2	0.0	17.4	126.6	9191.08
JAN 2015	0.5	1.9	0.0	0.3	0.0	0.4	10.7	0.6	12.2	0.0	14.0	124.8	9190.26
FEB 2015	0.4	2.0	0.0	0.3	0.0	0.5	5.3	1.4	7.5	0.0	17.2	115.1	9185.92
MAR 2015	0.5	0.9	0.0	0.3	0.0	0.5	11.1	1.2	13.3	0.0	12.7	115.7	9186.3
APR 2015	1.4	0.0	0.0	0.3	0.0	0.5	0.0	3.4	5.3	0.4	10.0	110.6	9183.93
MAY 2015	4.7	0.0	5.0	0.3	1.2	4.5	4.5	7.6	22.5	0.7	13.6	118.9	9187.77
JUN 2015	2.7	0.0	22.3	0.3	3.1	0.4	14.9	50.0	71.3	1.3	50.0	138.8	9196.51
JUL 2015	0.9	0.0	3.4	0.3	4.5	0.4	8.9	17.5	32.4	1.0	28.7	141.4	9197.43
AUG 2015	0.7	0.0	0.0	0.3	0.9	0.4	0.0	6.2	8.2	1.1	17.4	131.0	9193.43
SEP 2015	0.6	0.0	0.0	0.3	0.0	0.4	0.0	2.9	4.0	0.7	2.3	132.0	9193.26
TOTAL¹ (AF)	16,750	8,030	30,663	3,910	10,017	9,208	77,556	97,331	211,024	6,331	202,190		

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 2015 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 2014	16,668	16,929	0.9	51.6	51.3
NOV 2014	25,233	25,678	7.2	77.9	69.3
DEC 2014	22,770	23,247	15.8	70.7	56.6
JAN 2015	20,576	21,086	11.0	66.4	55.2
FEB 2015	18,086	18,552	5.9	55.9	50.3
MAR 2015	21,506	21,959	11.6	64.9	53.1
APR 2015	18,164	18,470	0.5	56.3	55.7
MAY 2015	23,067	23,308	10.3	67.8	57.7
JUN 2015	32,179	32,391	18.5	92.9	74.6
JUL 2015	36,137	36,356	14.0	107.5	93.4
AUG 2015	34,412	34,619	1.3	102.4	100.7
SEP 2015	21,952	22,135	0.5	64.6	65.5
Total	290,750	294,730	97	879	783

9. Pueblo Reservoir Water Year 2015 Operations

Fryingpan-Arkansas Project

Unit: 1,000 AF

Month	Inflow				Evap	Total Outflow	End of Month Content	Water Surface Elevation (feet msl)
	Project	Contract	Native ²	Total				
OCT 2014	0.3	2.5	25.2	28.0	1.2	27.4	171.3	4859.11
NOV 2014	7.8	11.9	13.4	33.2	0.7	16.0	187.7	4863.68
DEC 2014	11.0	15.0	6.2	32.2	0.5	8.0	211.5	4869.85
JAN 2015	10.0	14.9	6.9	31.8	0.4	8.0	234.8	4875.5
FEB 2015	6.0	17.5	6.6	30.1	0.7	8.5	255.6	4880.2
MAR 2015	5.3	59.3	0	31.9	1.7	25.8	260.0	4881.16
APR 2015	0.4	3.9	25.6	30.0	2.3	52.7	235.0	4875.55
MAY 2015	3.1	13.8	117.3	134.2	1.4	122.0	245.8	4878.04
JUN 2015	6.0	9.0	289.3	304.2	2.9	271.6	275.5	4884.44
JUL 2015	1.7	2.3	127.9	132.0	2.9	160.3	244.3	4877.70
AUG 2015	3.4	7.4	35.4	46.2	2.5	70.0	218.1	4871.49
SEP 2015	0.3	3.3	8.1	11.7	2.4	38.3	189.1	4866.42
Total¹ (AF)	55,404	160,867	629,131	845,403	19,629	808,548		

¹ Rounding may introduce discrepancies

² Native inflows are the total inflows less the account and project inflow. If the result is negative because of exchanges, 0 is recorded.

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
Twin Lakes	63,324	72,938	67,917	0	0	140,855 ²
Mt. Elbert Forebay	561	3825	7,318	0	0	11,143 ¹
Pueblo WY2015	2,329	28,121	228,828	66,000	26,991	349,940
Pueblo WY2016 ³	1,895	25,601	219,772	66,011	26,990	469,878

¹ Area Capacity Table from 1984

² 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

³ A new sedimentation survey completed in 2012 results in a change to the Pueblo Reservoir allocations. This change takes place Oct 1, 2015

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 = $\text{monthly factor} * \text{surface area of the lake} * (1 - \text{percent ice cover})$

12. Monthly Evaporation
 Fryingpan-Arkansas Project
 Unit=AF

Month	Ruedi		Turquoise		Twin Lakes and Mt. Elbert		Pueblo	
	AVG	WY 2015	AVG	WY 2015	AVG	WY 2015	AVG	WY 2015
OCT 2014	53	86	372	377	611	692	1,102	1,210
NOV 2014	0	0	179	138	253	249	546	680
DEC 2014	0	0	14	32	27	47	433	512
JAN 2015	0	0	0	0	1	1	393	426
FEB 2015	0	0	0	0	2	2	578	736
MAR 2015	0	0	0	0	26	28	1,222	1,664
APR 2015	8	0	13	17	205	392	1,683	2,325
MAY 2015	151	227	275	150	952	685	2,100	1,360
JUN 2015	440	597	724	668	1,351	1,329	2,583	2,929
JUL 2015	499	582	600	506	1,085	1,045	2,424	2,892
AUG 2015	281	405	476	622	859	1,127	1,959	2,539
SEP 2015	167	222	422	447	779	735	1,611	2,356

Average between 1996 and 2015

13. Monthly Precipitation
 Fryingpan-Arkansas Project
 Unit=Inches

MONTH	MEREDITH NEAR RUEDI		TURQUOISE		TWIN LAKES		PUEBLO	
	AVG	WY 2015	AVG	WY 2015	AVG	WY 2015	AVG	WY 2015
OCT 2014	1.08	1.43	1.16	0.88	0.88	0.47	0.86	0.88
NOV 2014	1.12	1.20	1.27	3.21	0.47	1.01	0.36	0.42
DEC 2014	1.14	1.82	1.29	2.09	0.42	0.82	0.32	0.26
JAN 2015	1.29	0.27	1.52	0.40	0.43	0.02	0.31	0.40
FEB 2015	1.44	0.78	1.53	1.13	0.50	0.42	0.39	1.16
MAR 2015	1.25	1.36	1.38	1.88	0.58	0.15	0.80	0.81
APR 2015	1.56	1.32	1.65	1.73	0.78	1.49	1.73	1.93
MAY 2015	2.16	3.58	1.50	2.99	0.89	1.64	1.43	6.24
JUN 2015	1.89	1.30	0.88	0.69	0.77	1.06	0.91	2.58
JUL 2015	1.42	3.65	2.15	2.18	1.88	0.86	1.73	1.34
AUG 2015	1.14	1.55	2.19	1.08	1.55	0.64	2.36	2.15
SEP 2015	1.31	1.22	1.58	1.01	1.20	0.95	0.71	0.11
TOTAL	16.80	19.48	18.10	19.27	10.35	9.53	11.91	18.28
Max. Annual	26.70	(1984)	25.95	(1957)	17.27	(1952)	20.32	(2007)

¹ The USGS weather station at Ruedi was out of service for WY2015. The precipitation totals from Meredith have been substituted

14. Flood Control Benefits
Fryingpan-Arkansas Project

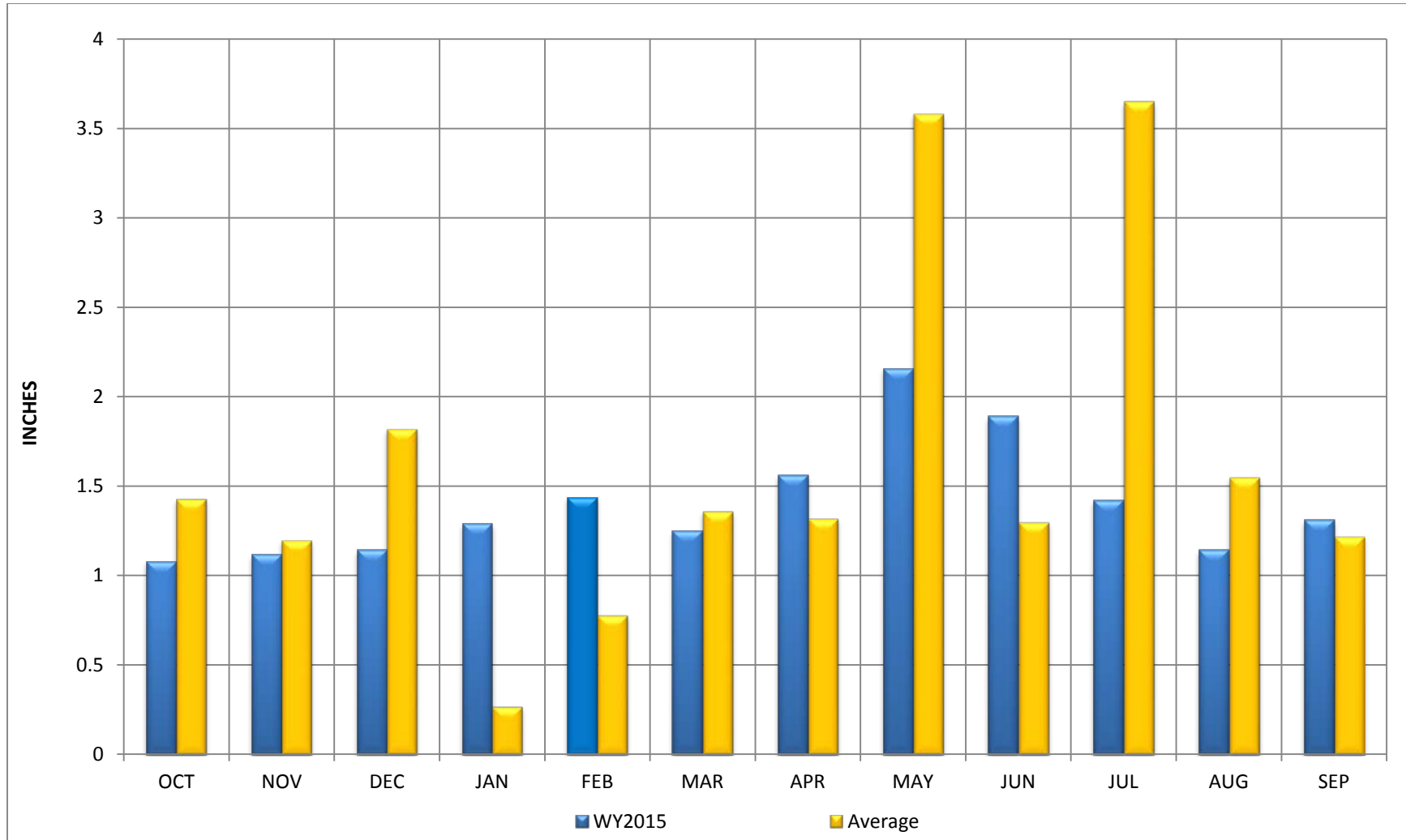
WY	Ruedi Benefits WY2015	Ruedi Benefits Cumulative	Pueblo Benefits WY2015	Pueblo Benefits Cumulative
1976			\$320,000	\$320,000
1979			\$90,000	\$410,000
1980			\$86,000	\$496,000
1981			\$111,000	\$607,000
1982			\$836,000	\$1,443,000
1983	\$80,000	\$80,000	\$47,000	\$1,490,000
1984	\$330,000	\$410,000	\$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
Fryingpan-Arkansas Project

WY	Ruedi Benefits WY2015	Ruedi Benefits Cumulative	Pueblo Benefits WY2015	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
2015	\$1,402,300	\$19,718,700	\$4,493,000	\$36,785,000

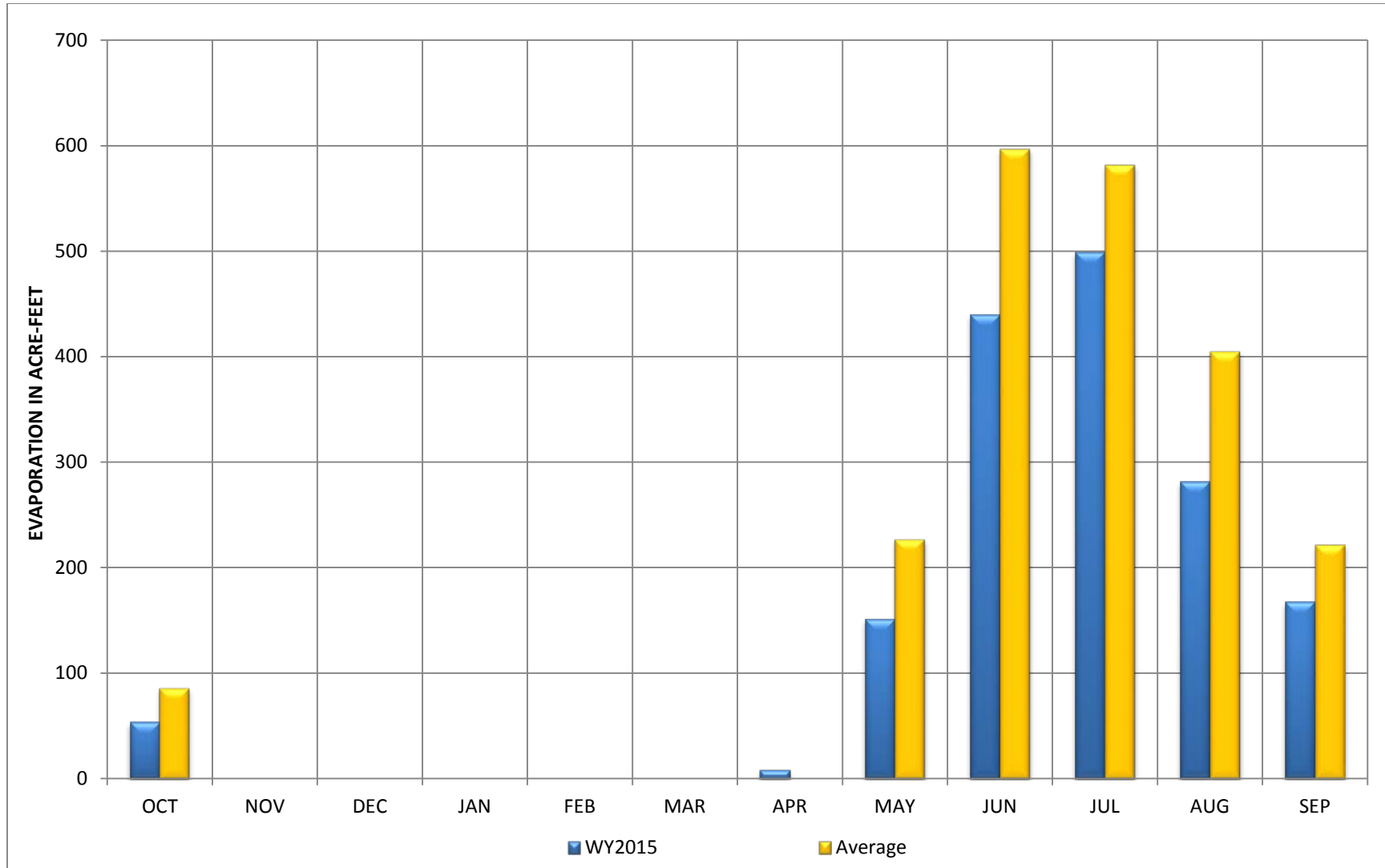
APPENDIX B: EXHIBITS

1. Meredith CO Monthly Precipitation WY2015

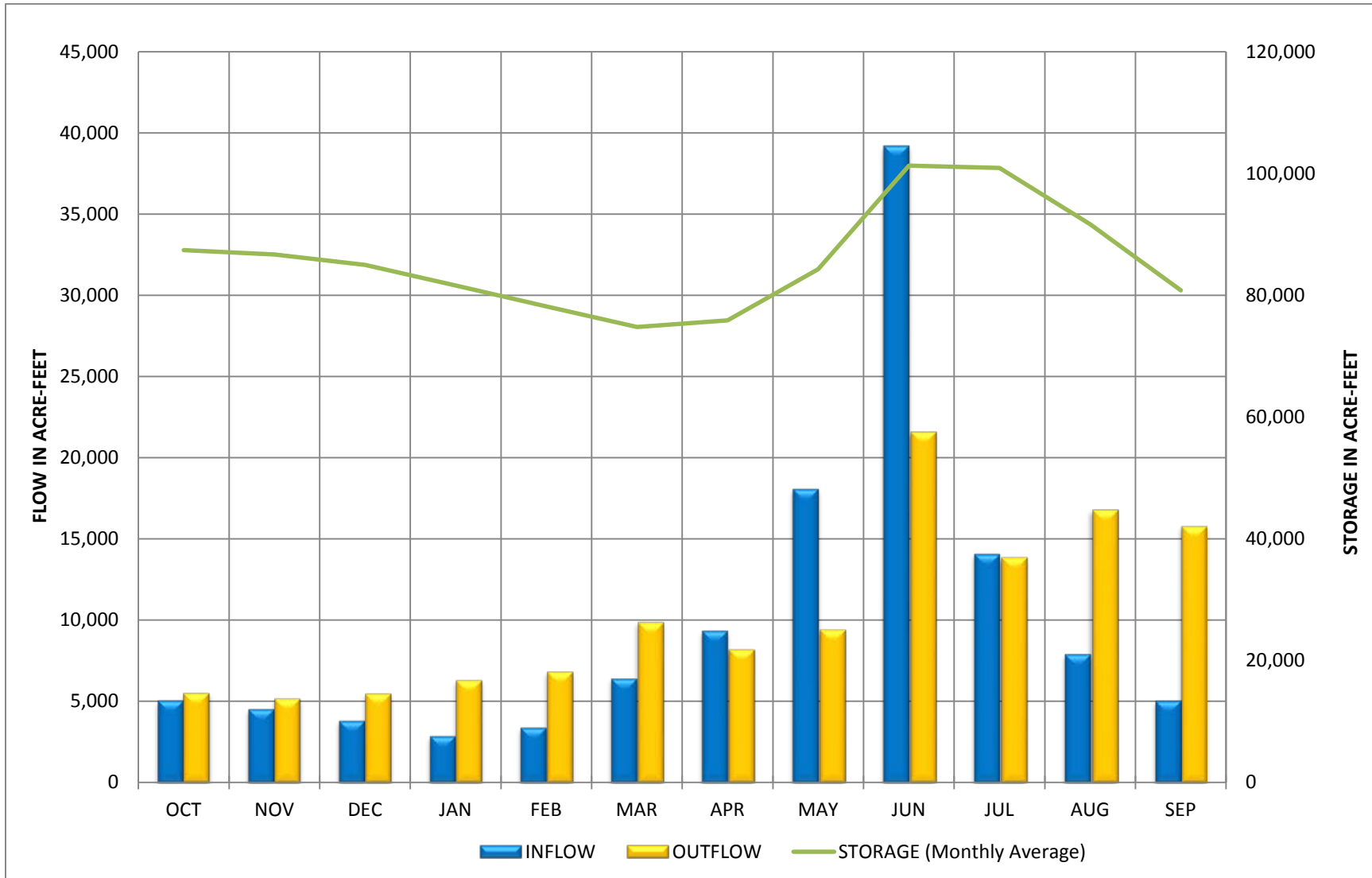


The weather station at Ruedi was out of service for the year. These precipitation values are from the nearby gage at Meredith

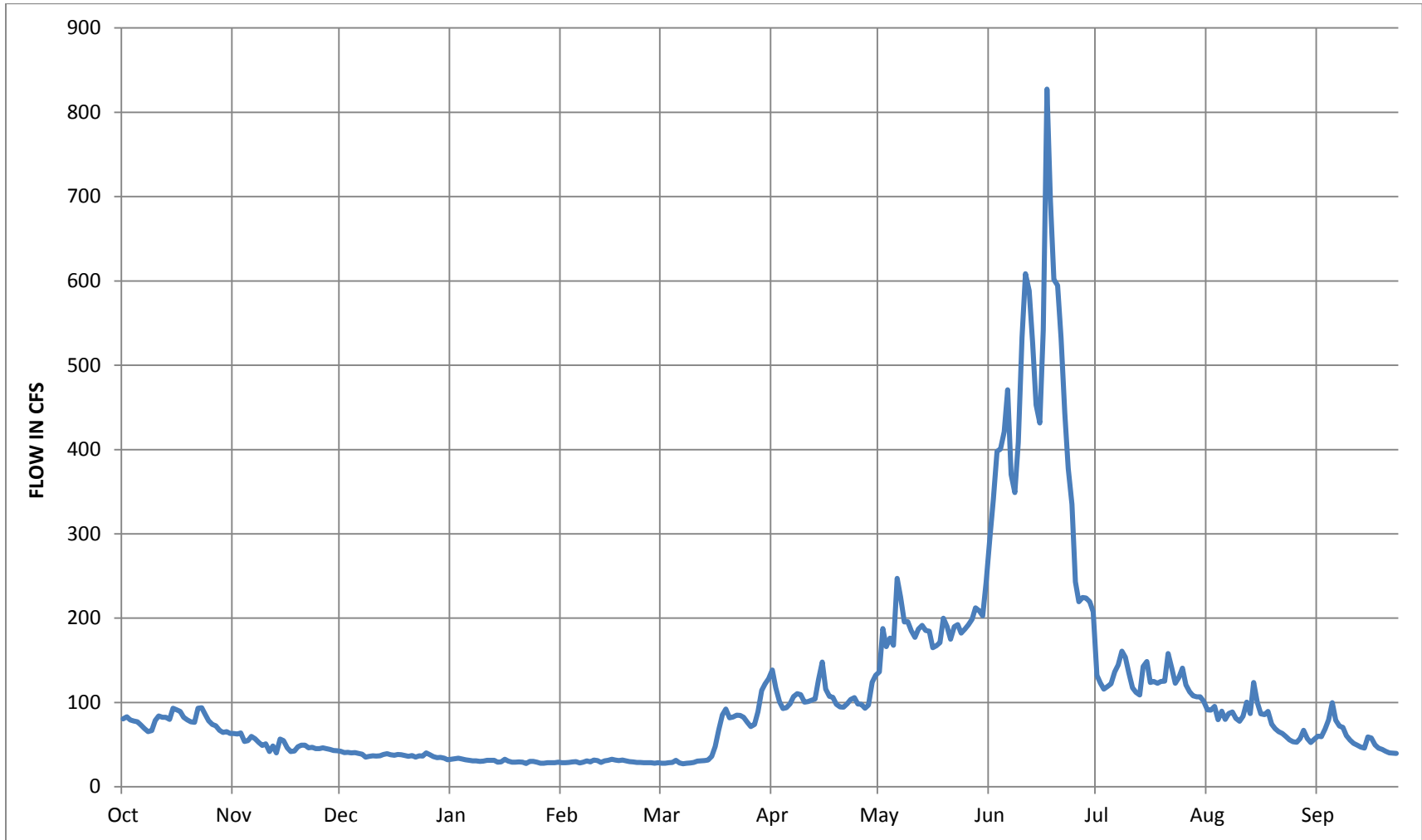
2. Ruedi Reservoir Monthly Evaporation WY2015



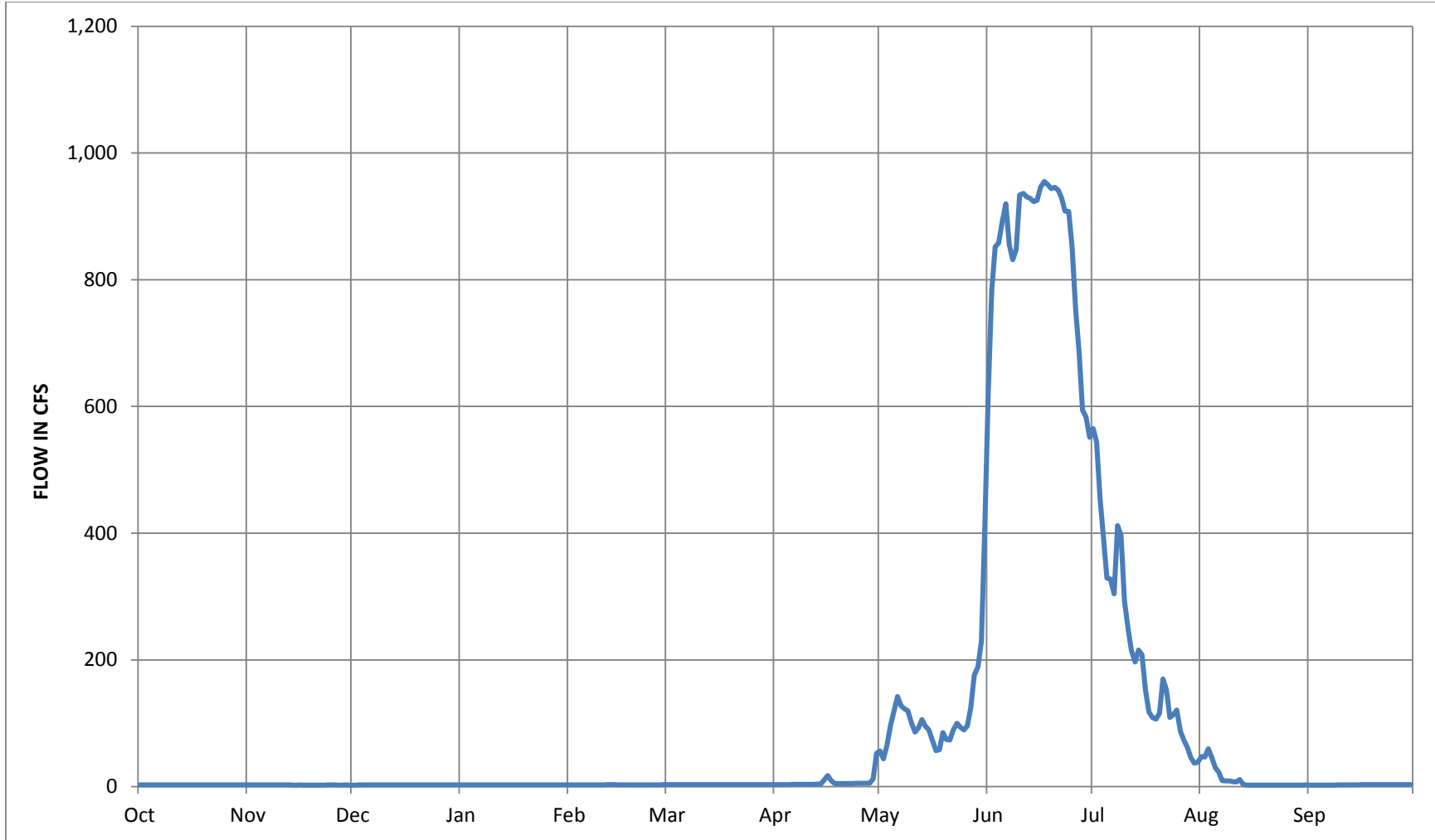
3. Ruedi Reservoir Actual Operations WY2015



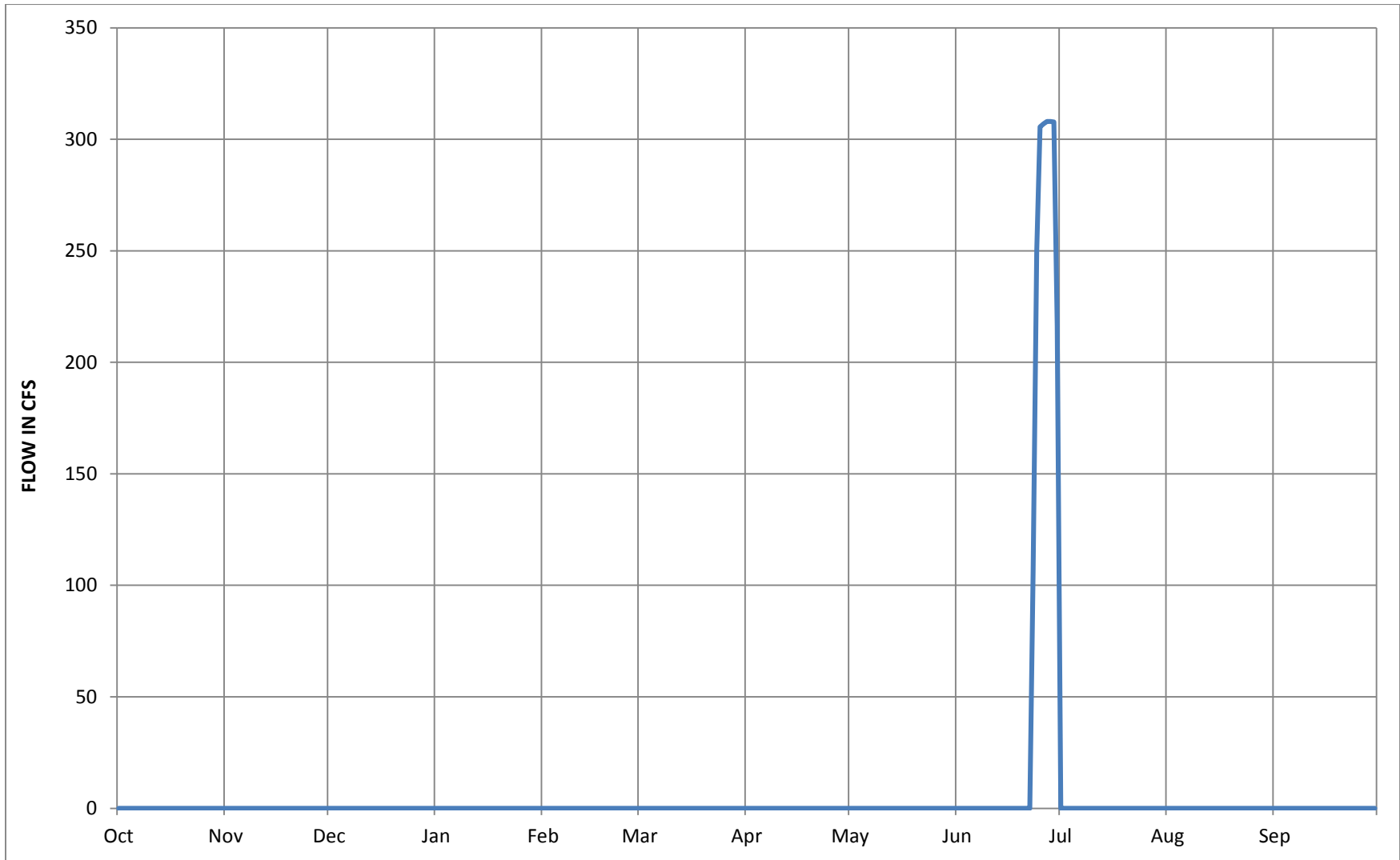
4. Fryingpan River near Thomasville Daily Discharge WY2015



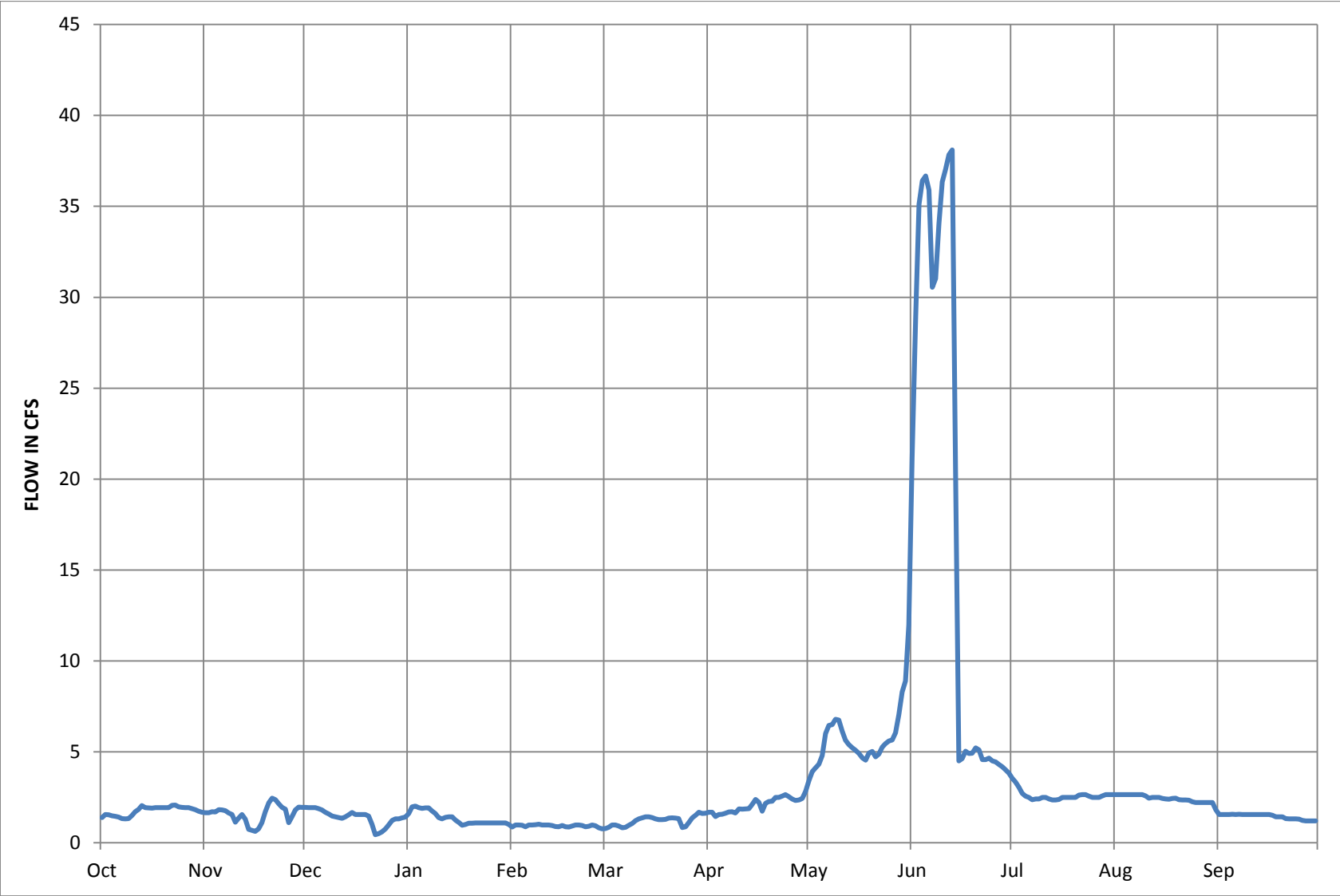
5. Boustead Tunnel Actual Operations WY2015



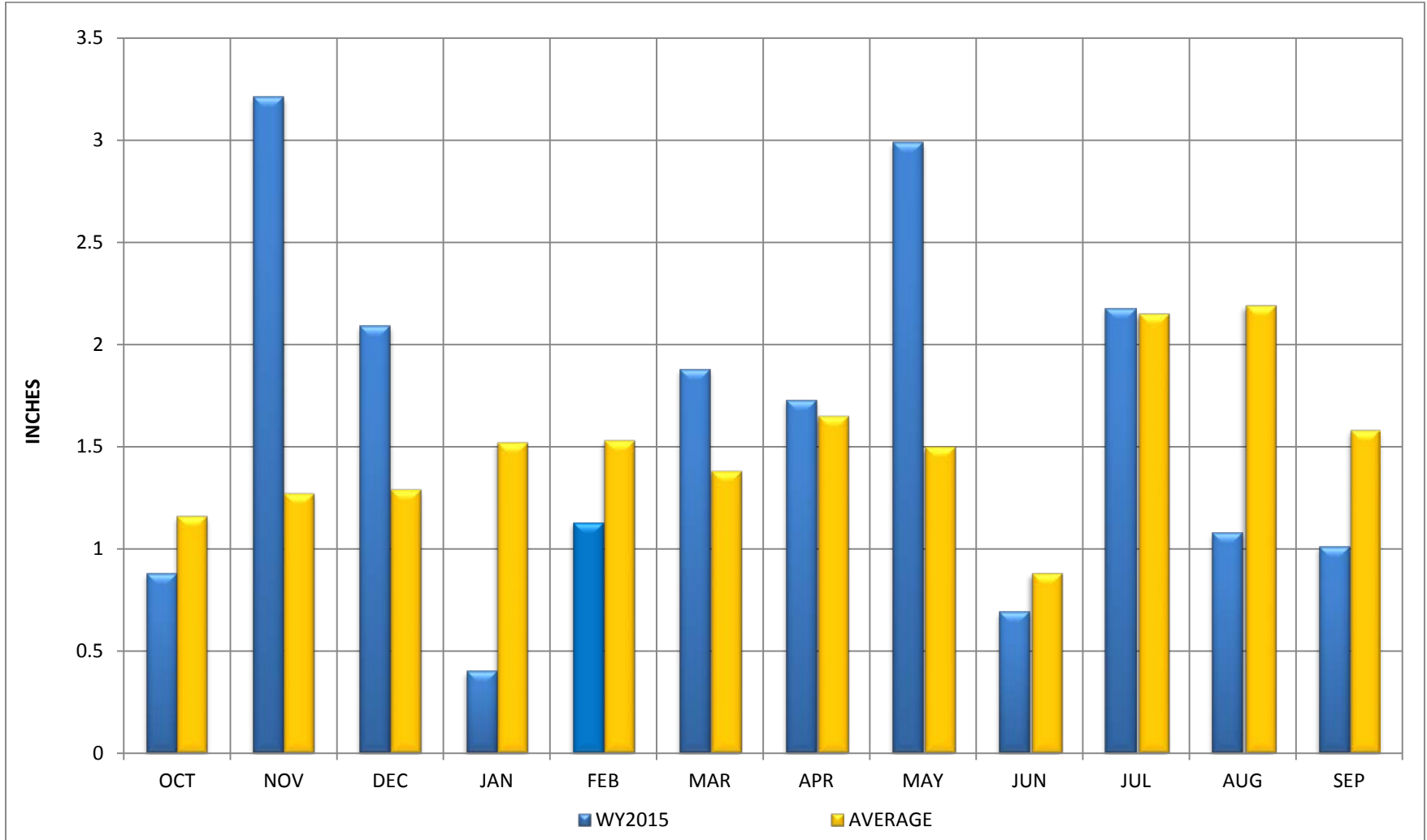
6. Homestake Tunnel Actual Operations WY2015



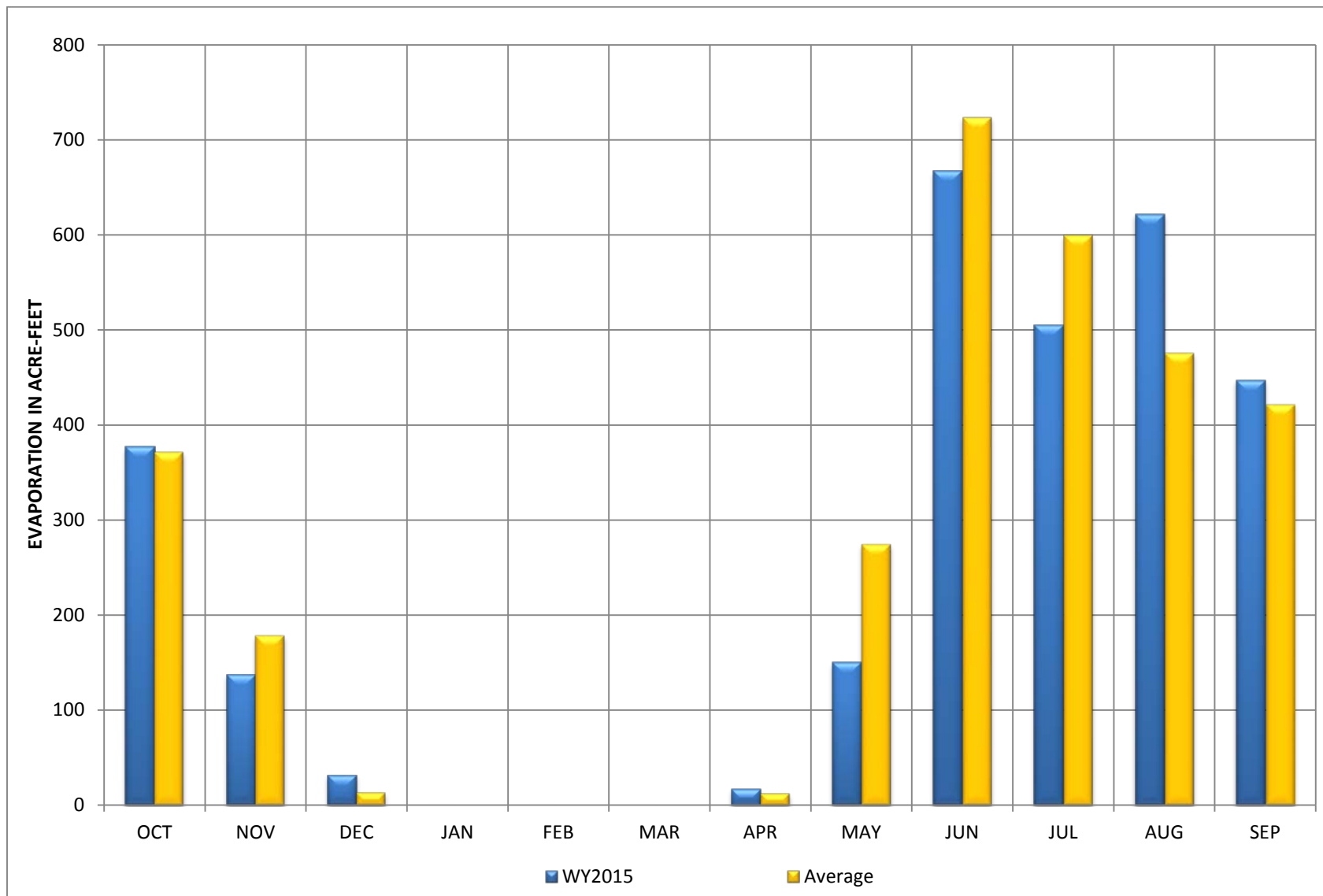
7. Busk-Ivanhoe Tunnel Actual Operations WY2015



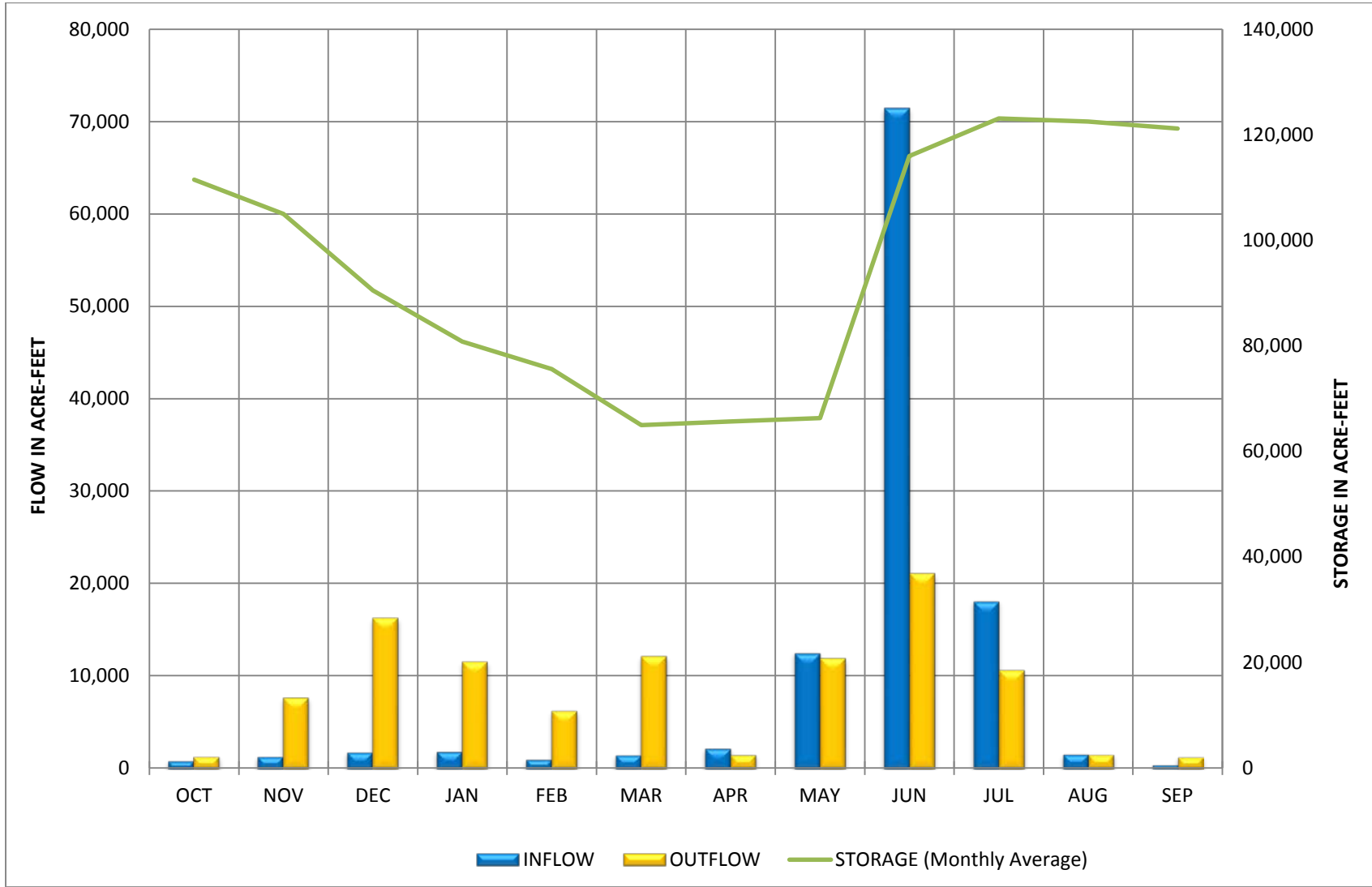
8. Turquoise Lake (Sugar Loaf Dam) Monthly Precipitation WY2015



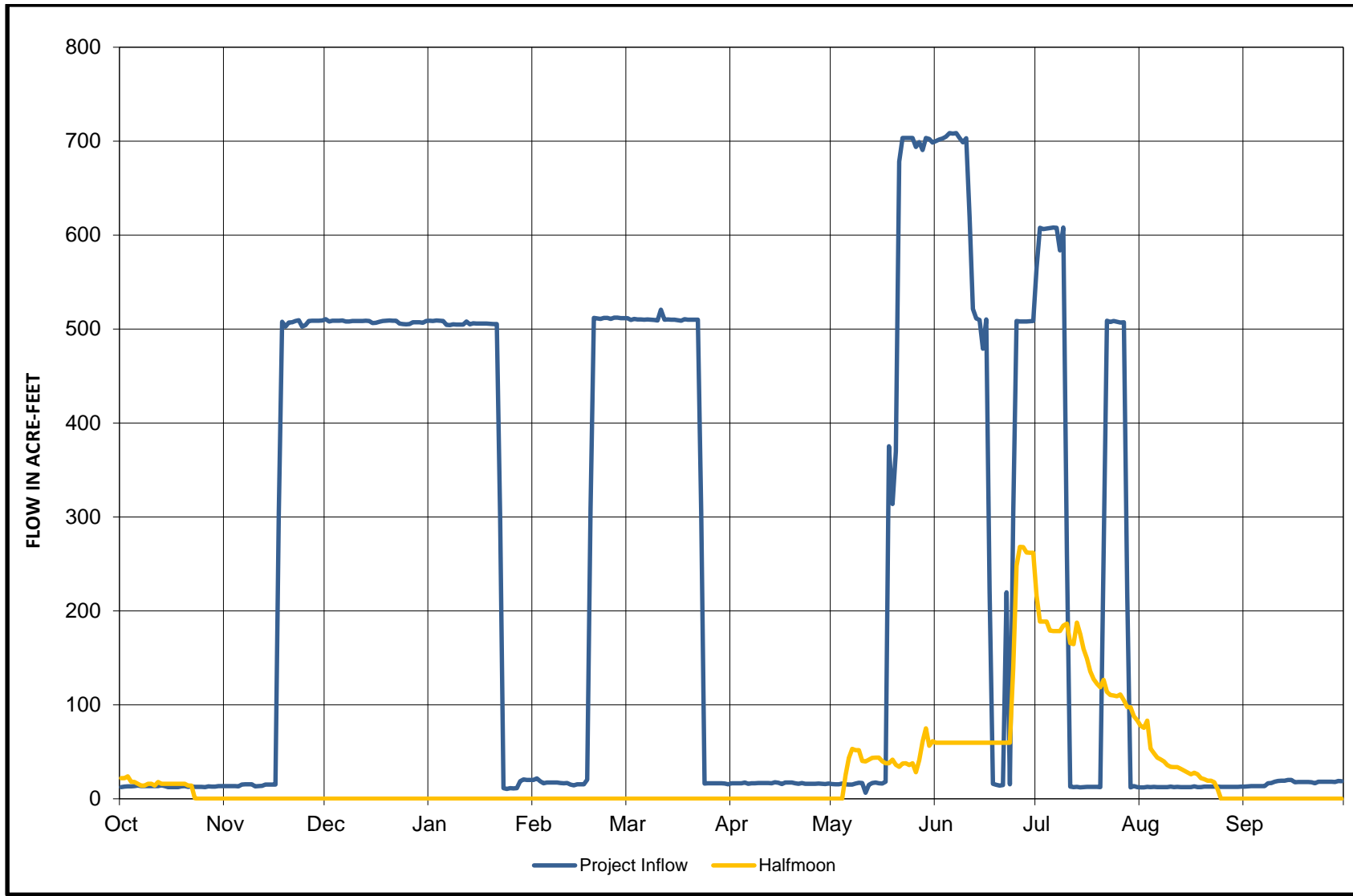
9. Turquoise Lake (Sugar Loaf Dam) Monthly Evaporation WY2015



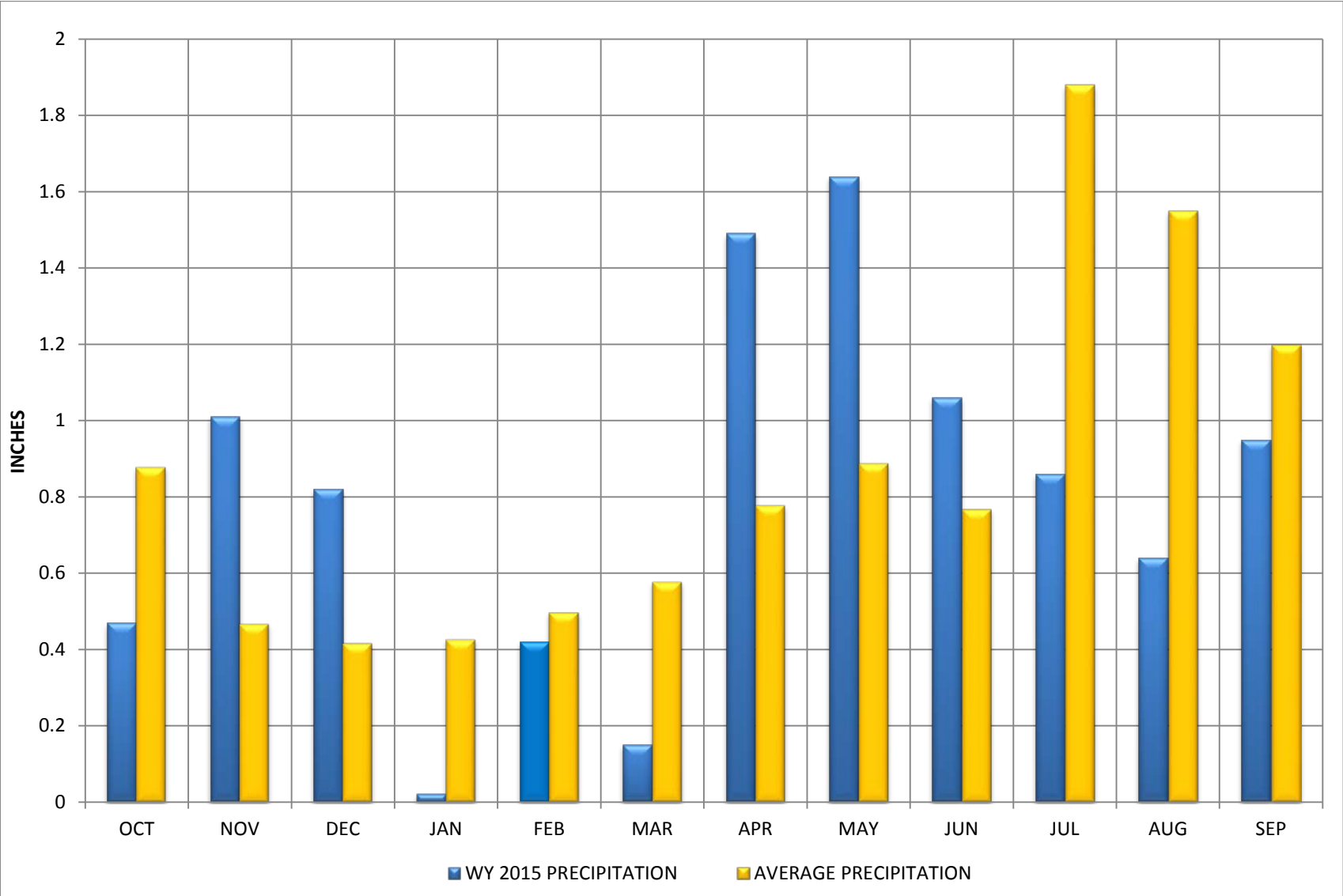
10. Turquoise Lake (Sugarloaf Dam) Actual Operations WY2015



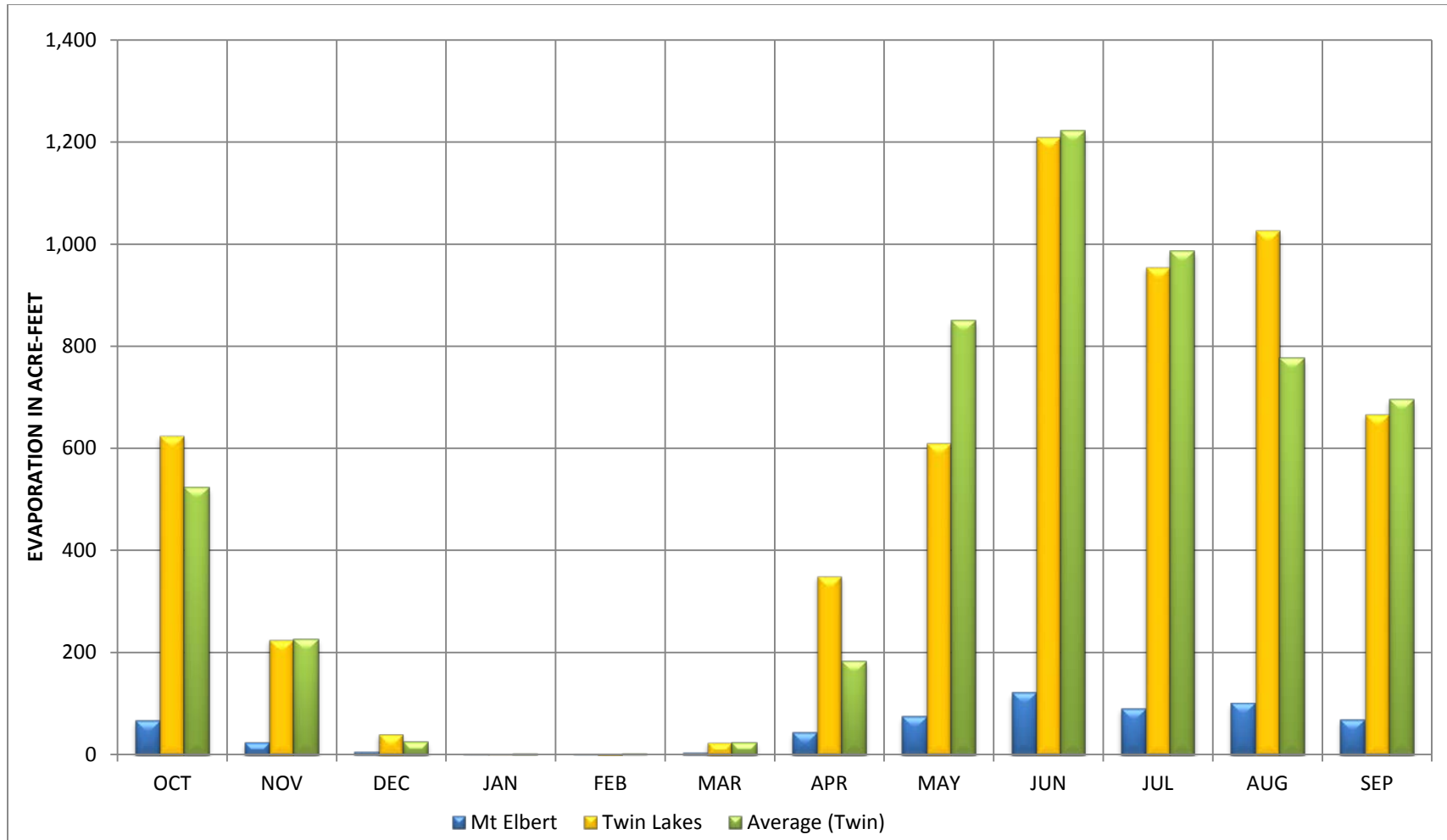
11. Mt. Elbert Conduit Inflow Actual Operations WY2015



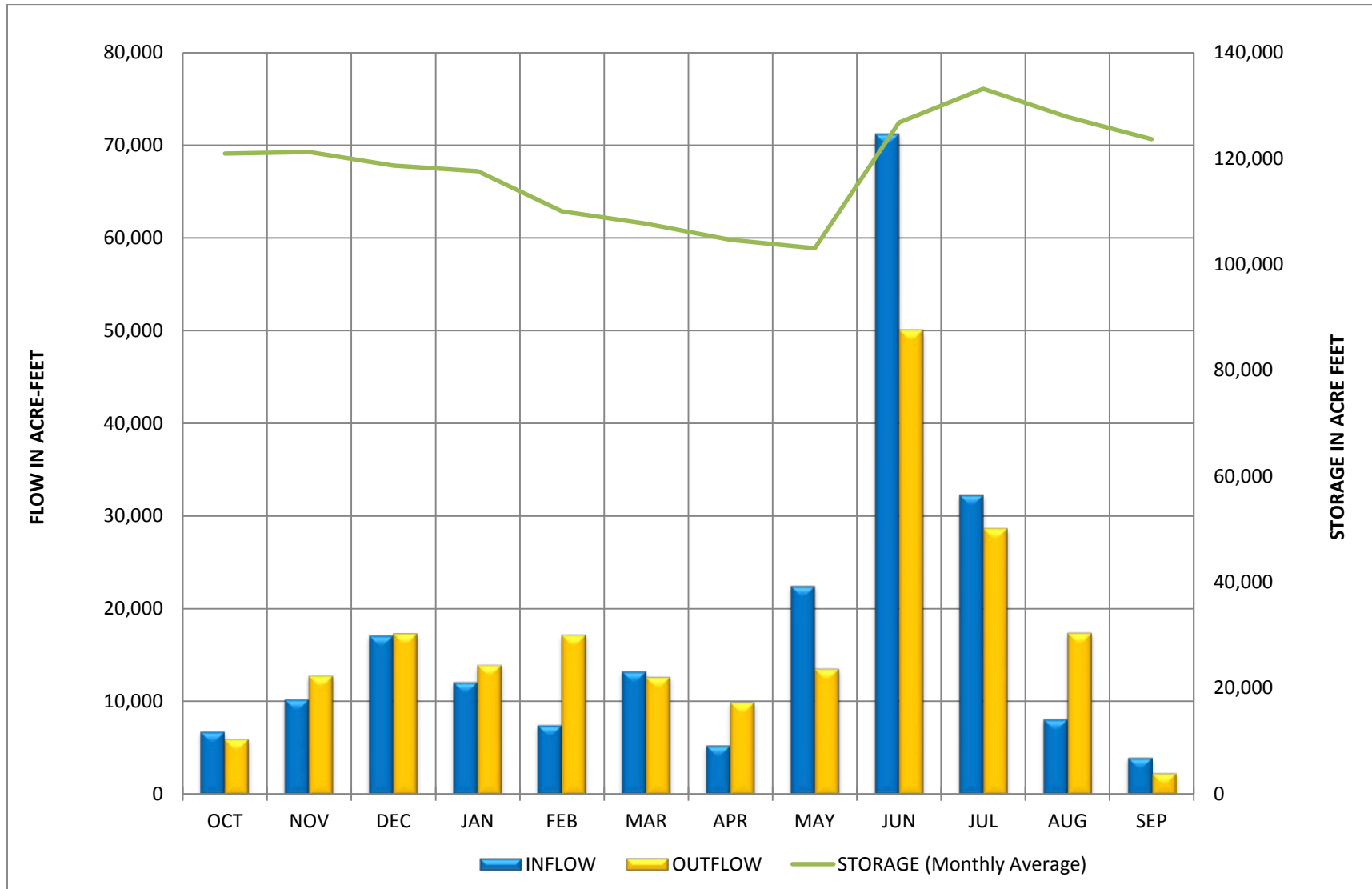
12. Twin Lakes Monthly Precipitation WY2015



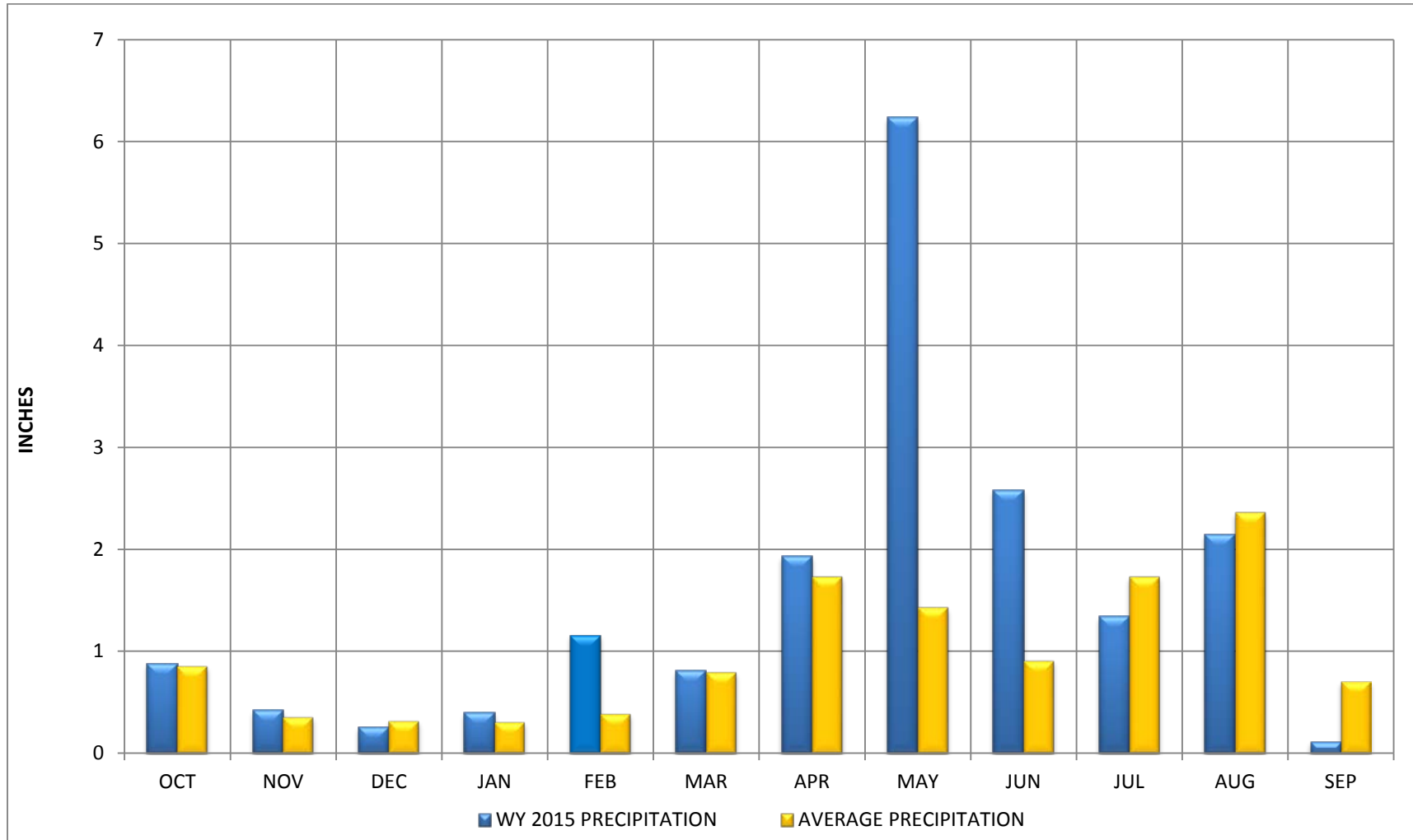
13. Twin Lakes Dam and Mt. Elbert Forebay Monthly Evaporation WY2015



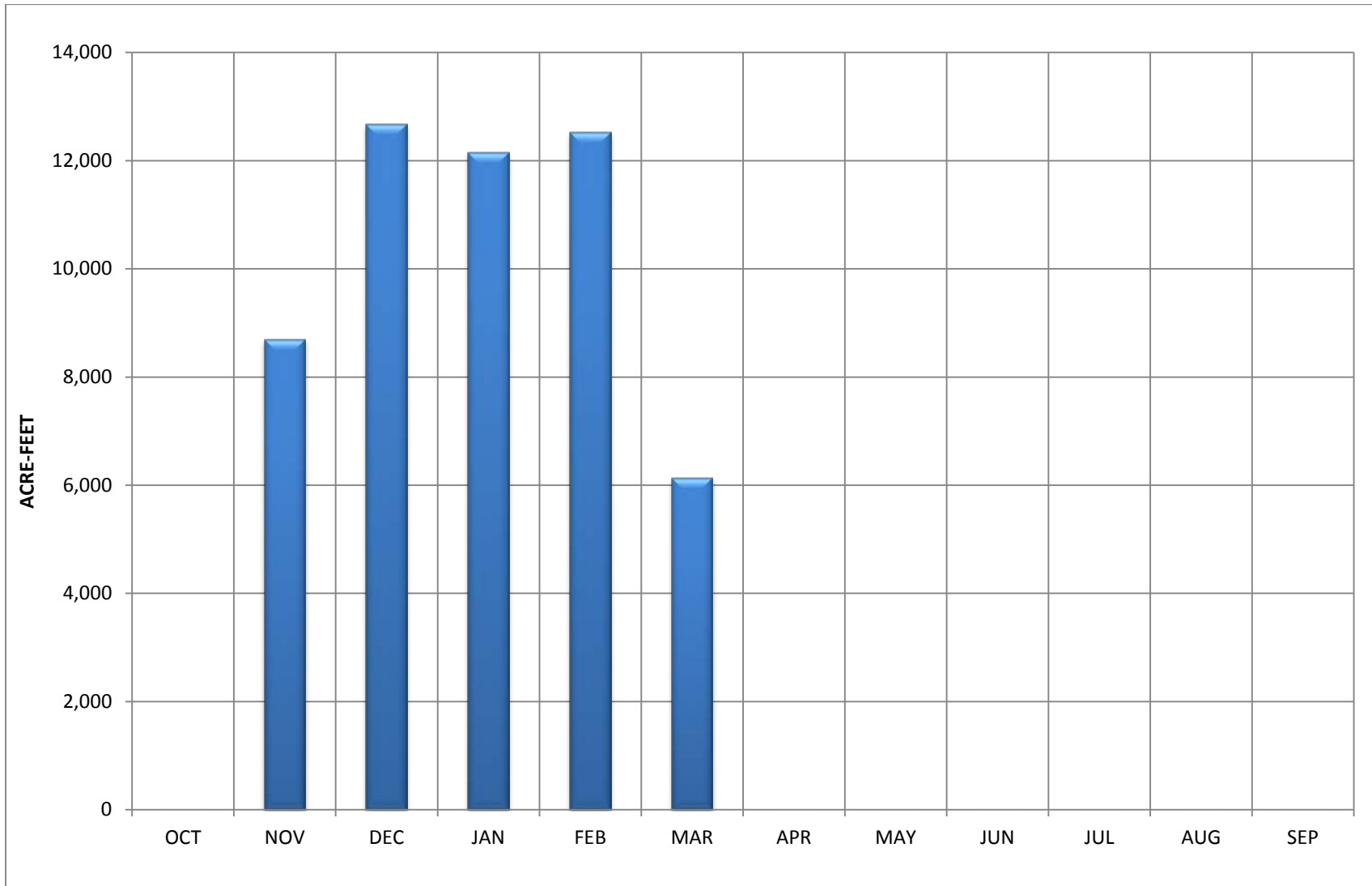
14. Twin Lakes/Mt. Elbert Forebay Actual Operations WY2015



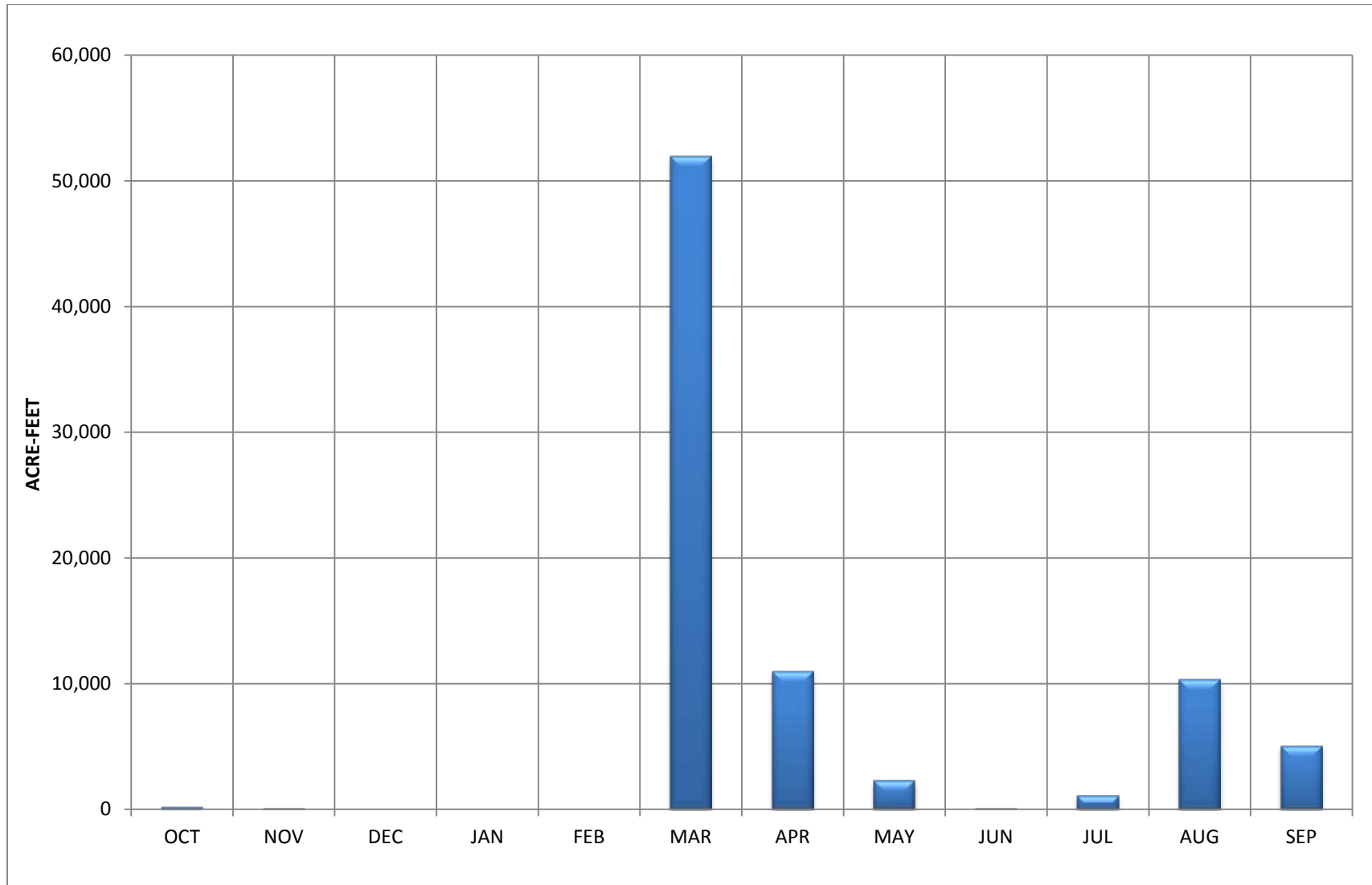
15. Pueblo Dam Monthly Precipitation WY2015



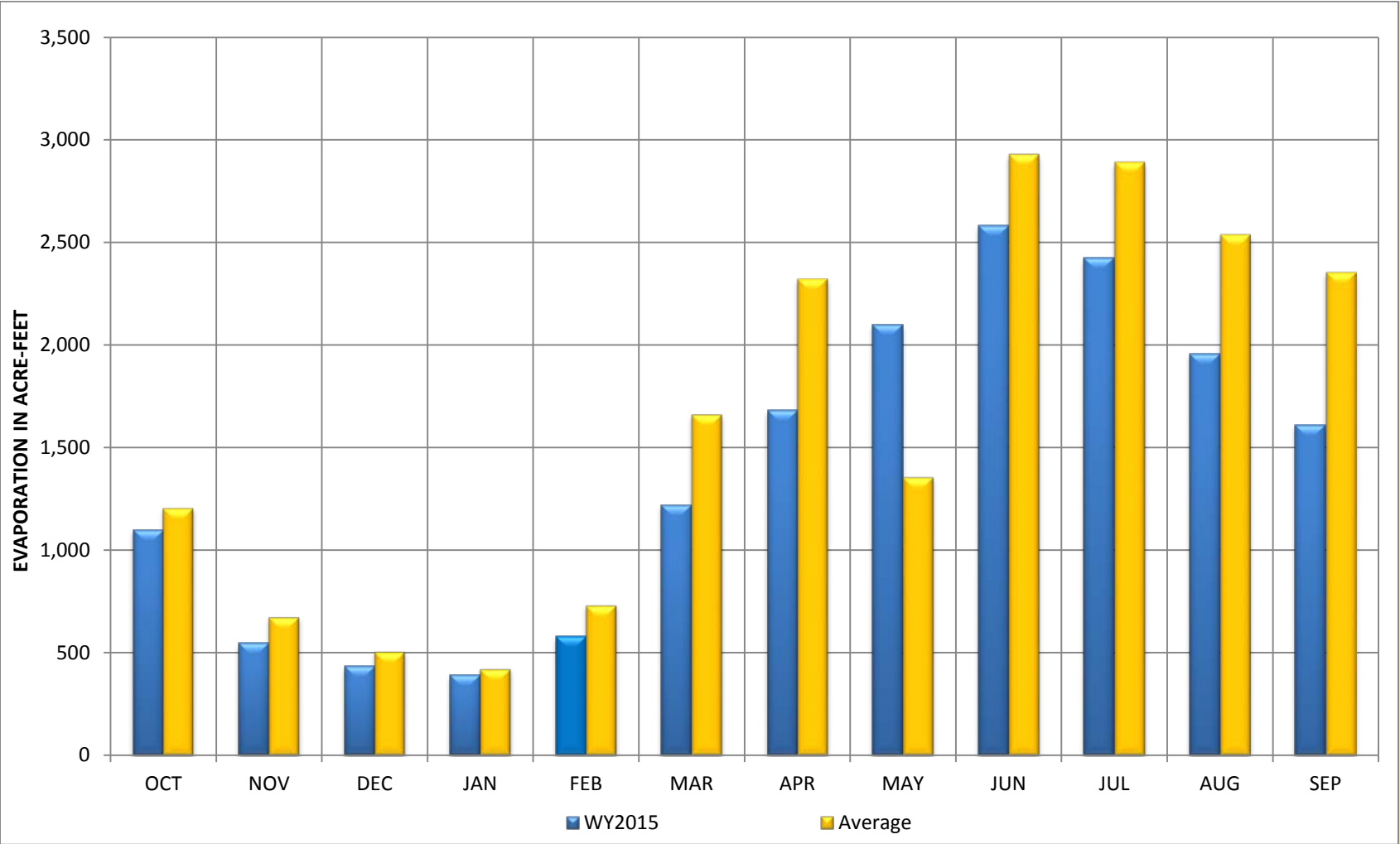
16. Pueblo Reservoir Winter Water Inflow WY2015



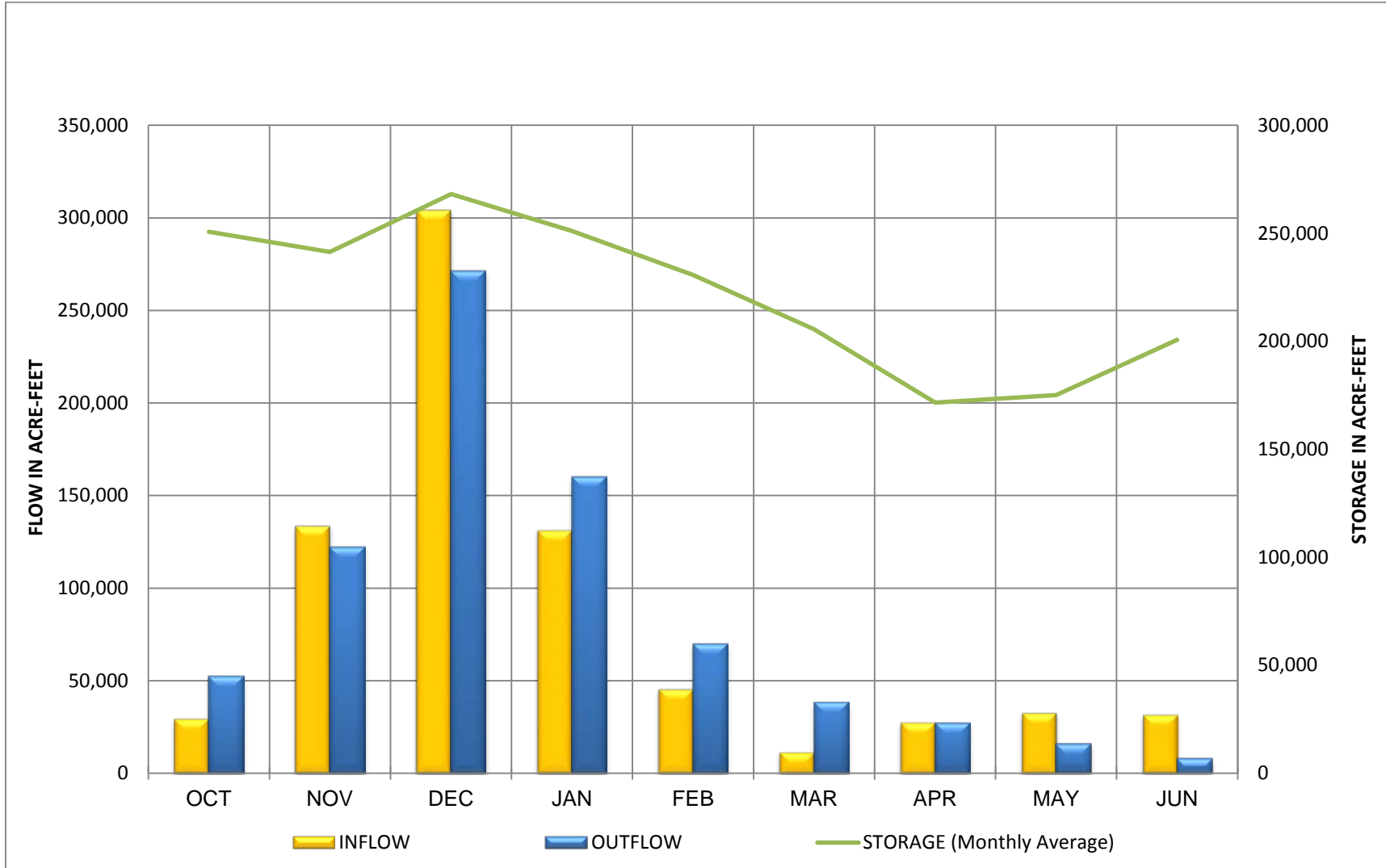
17. Releases of Pueblo Reservoir Winter Water WY2015



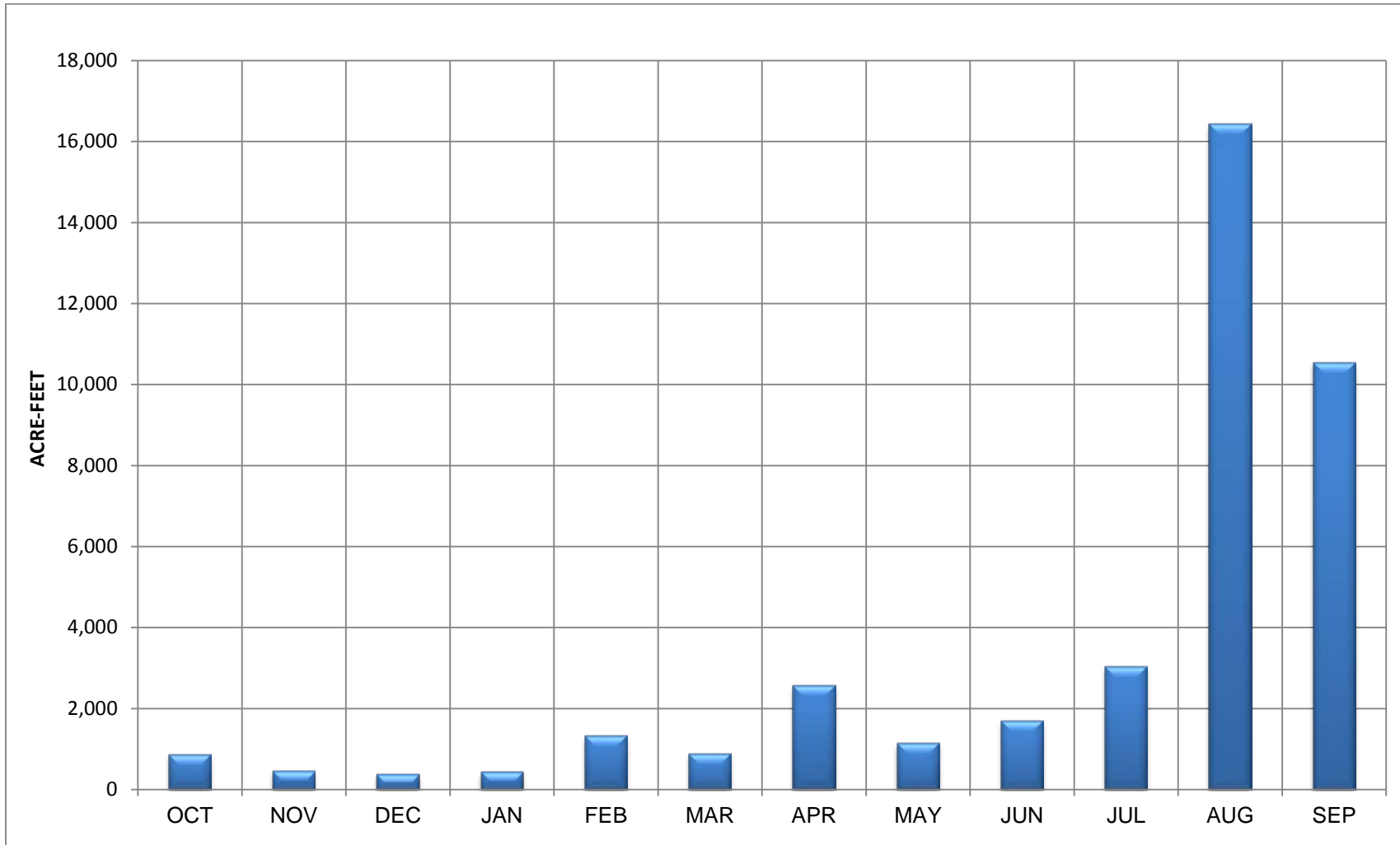
18. Pueblo Dam Monthly Evaporation WY2015



19. Pueblo Reservoir Actual Operations WY2015



20. Releases of Fryingpan-Arkansas Project Water WY2015



APPENDIX C: TWIN LAKES RESERVOIR AND CANAL COMPANY
EXCHANGE WITH FRYINGPAN-ARKANSAS PROJECT WATER

Twin Lakes Canal Company Exchange with Fryingpan-Arkansas Project Water WY2015

Units = AF

	Lincoln Creek below Grizzly Reservoir (1)	(2)	Total Exchanged (3)	Lakes rage 3) x 0.9913 ¹
Oct 2014	150.93	0	150.93	149.94
Nov 2014	152.71	0	152.71	151.41
Dec 2014	169.22	0	169.22	167.88
Jan 2015	166.43	0	166.43	165.00
Feb 2015	156.00	0	156.00	154.60
Mar 2015	179.45	0	179.45	177.89
Apr 2015	161.64	0	161.64	160.26
May 2015	171.61	0	171.61	170.13
Jun 2015	124.11	121.53	245.64	243.49
Jul 2015	95.16	95.16	190.32	188.69
Aug 2015	79.30	59.10	138.4	137.25
Sep 2015	0	0	0	0
Total	1,606.56	275.79	1,888.35	1,866.54

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.

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

Please see the discussion in Chapter IV, Paragraph C for a full discussion of the Twin Lakes Canal Company Exchange in WY15

Operating Criteria

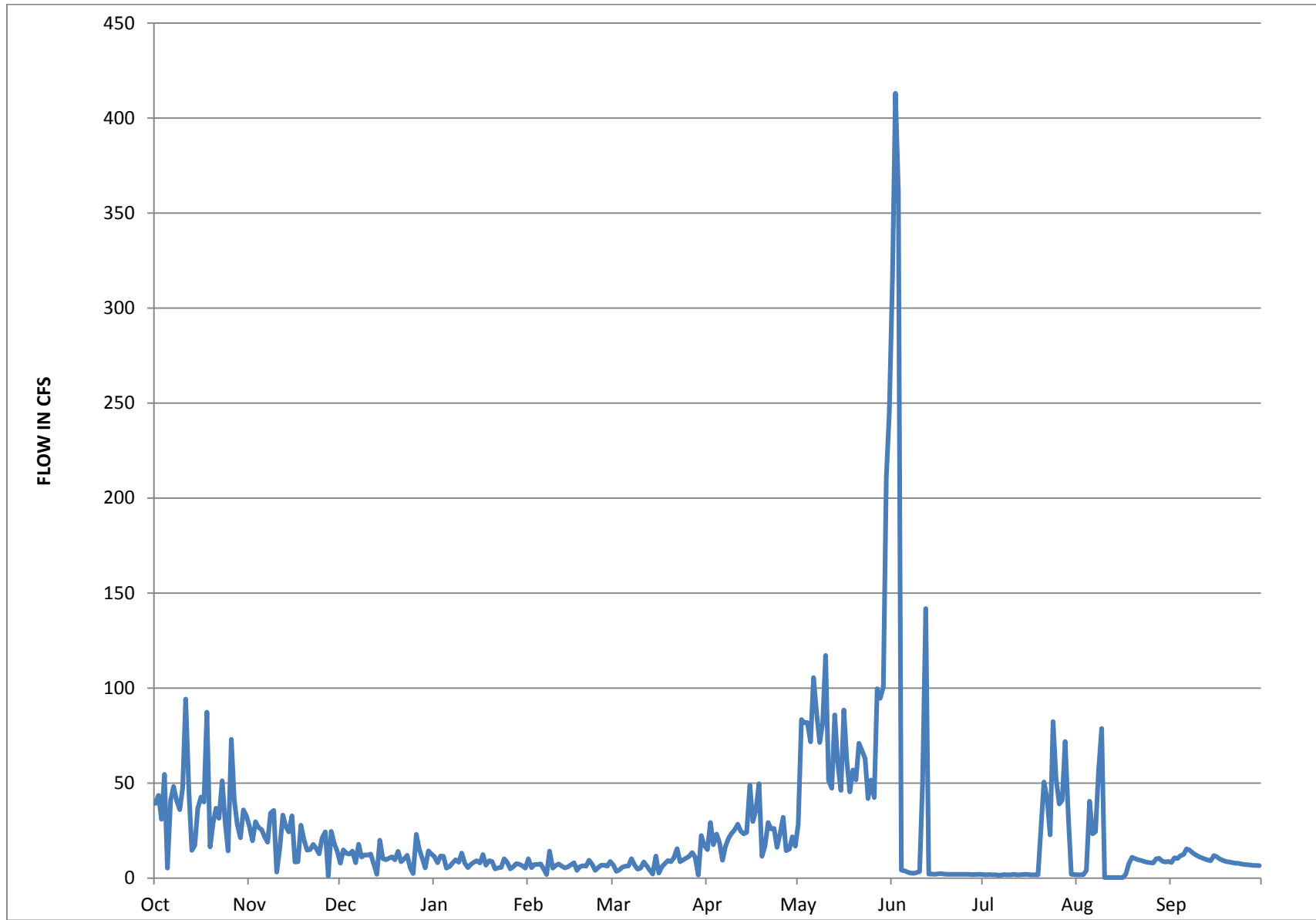
1. The water exchange will be implemented October 1, 2014 through September 30, 2015.
2. The releases to the Roaring Fork River at the Roaring Fork Diversion Dam and Lincoln Creek at the Grizzly Diversion Dam shall be accounted as follows¹:

<u>Month</u> <u>Diversion (cfs)</u>	<u>Grizzly Diversion (cfs)</u>	<u>Roaring</u> <u>Fork</u>
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*

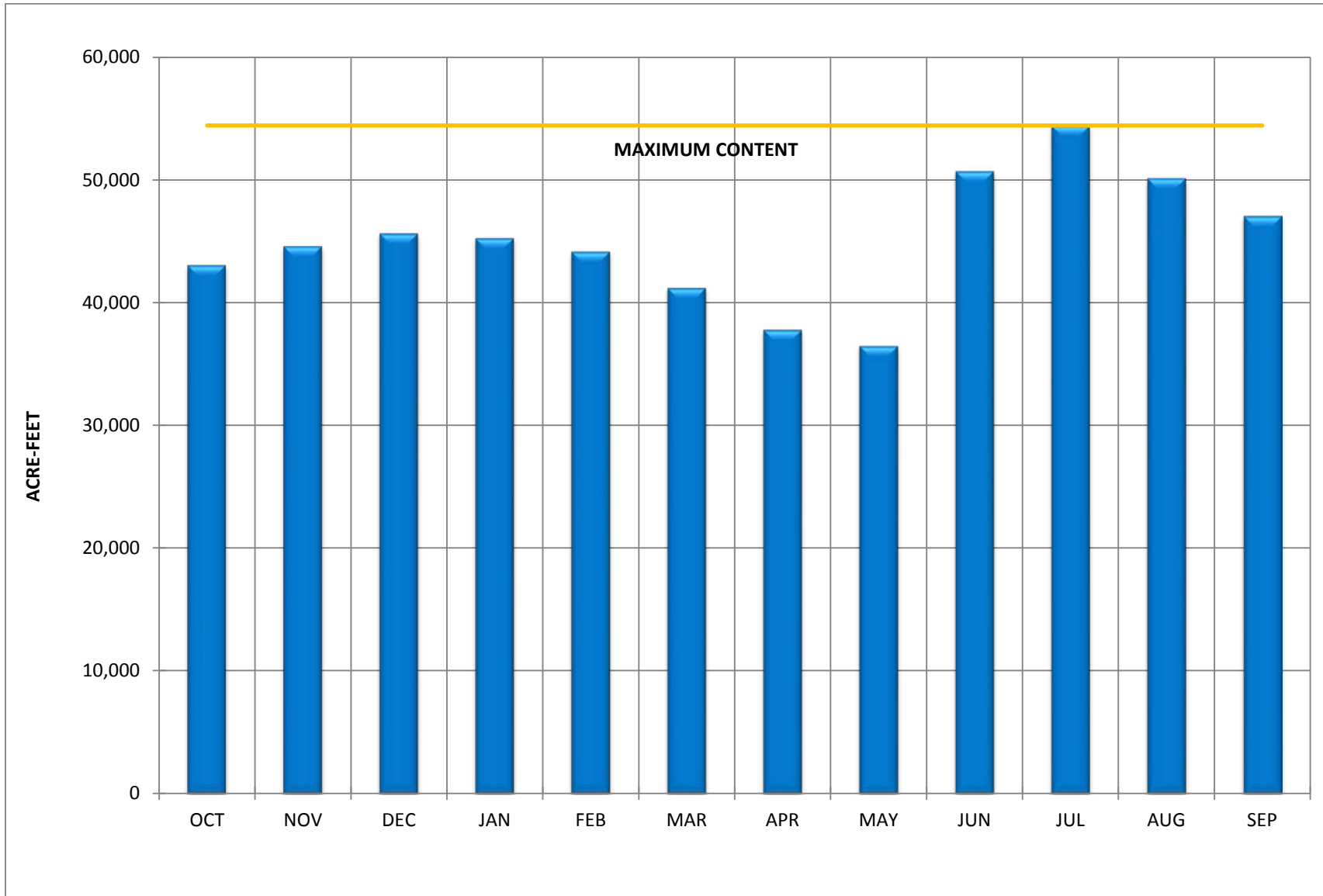
*Between June 20, 2015 and July 19, 2015, TLCC chose to forego diversions from the west slope in favor of storing east slope priority native inflows. Between August 11, 2015 and September 30, 2015, diversions were stopped to complete repairs on Grizzly Reservoir.

3. At any time the Twin Lakes Reservoir and Canal Company (TLCC) 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 WY2015



Twin Lakes Canal Company Storage WY2015



APPENDIX D: DAILY DISCHARGE RECORDS, FRYINGPAN-
ARKANSAS PROJECT COLLECTION SYSTEM

Carter Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		6.03	32.50	34.73	0.07	
2		7.24	39.94	30.60	0.04	
3		7.50	42.97	27.15	0.04	
4		7.39	43.10	25.10	0.05	
5		8.64	43.33	22.37	0.04	
6		11.61	43.38	24.35	0.05	
7		7.89	39.92	22.52	0.04	
8		6.23	41.15	32.21	0.04	
9		6.24	39.15	33.25	0.04	
10		5.39	36.51	21.95	0.05	
11		3.92	39.55	19.21		
12		3.91	38.69	17.69		
13		4.63	37.11	18.45		
14		3.91	42.53	20.13		
15		3.92	44.91	25.00		
16		2.99	42.54	15.41		
17		2.50	40.49	12.21		
18		2.87	40.04	12.42		
19		5.55	40.25	13.19		
20		4.07	41.51	11.66		
21		3.67	41.62	22.56		
22		4.16	38.87	18.49		
23		4.93	36.61	13.14		
24		5.06	35.91	11.19		
25		4.60	35.81	10.33		
26		4.60	35.18	8.89		
27		6.81	34.62	7.01		
28		9.62	32.88	7.03		
29	0.85	9.21	35.09	2.20		
30	3.99	10.18	35.32	0.09		
31		21.50		0.08		
TOTAL	4.84	196.77	1171.48	540.61	0.46	
AVERAGE	2.42	6.35	39.05	17.44	0.05	
MAX	3.99	21.50	44.91	34.73	0.07	

WY2015 Total: 3,796.74 AF

Maximum Instantaneous Peak: 44.91 on Jun 15

Blank: Recorder not operated. No water diverted

M: Missing Data

North Fork Fryingpan River Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0.07	8.01	11.22	0.07	
2		0.08	11.51	10.24	0.07	
3		0.16	13.67	8.92	0.07	
4		0.28	14.20	7.86	0.07	
5		0.55	14.83	6.93	0.07	
6		1.25	15.29	6.53	0.07	
7		1.13	13.90	6.74	0.07	
8		0.78	15.52	8.88	0.07	
9		0.68	17.60	8.69	0.07	
10		0.80	19.57	6.87	0.42	
11		0.58	20.11	5.95	1.06	
12		0.42	20.05	5.26	0.36	
13		0.35	19.76	4.95		
14		0.25	18.88	5.57		
15		0.22	19.55	6.25		
16		0.10	20.65	5.44		
17	0.04	0.07	21.13	4.81		
18	0.07	0.15	20.47	4.47		
19	0.07	0.31	20.48	4.26		
20	0.07	0.22	20.59	4.77		
21	0.07	0.09	20.36	6.35		
22	0.07	0.10	19.90	6.21		
23	0.07	0.19	19.02	5.38		
24	0.07	0.19	18.63	5.02		
25	0.07	0.26	17.02	4.73		
26	0.07	0.32	15.09	4.24		
27	0.07	0.61	14.08	3.78		
28	0.07	1.27	13.15	3.36		
29	0.07	1.64	12.49	1.18		
30	0.07	2.25	11.97	0.12		
31		4.68		0.08		
TOTAL	0.95	20.03	507.51	175.05	2.44	
AVERAGE	0.07	0.65	16.92	5.65	0.20	
MAX	0.07	4.68	21.13	11.22	1.06	

WY2015 Total: 1,400.26 AF

Maximum Instantaneous Peak: 21.13 cfs on Jun 17

Blank: Recorder not operated. No water diverted

M: Missing Data

South Fork Fryingpan River Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		6.83	76.48	94.85	13.37	
2		7.35	101.14	99.13	13.01	
3		10.22	106.59	81.17	16.52	
4		13.46	109.33	72.01	14.55	
5		10.01	114.34	59.60	12.60	
6		14.13	121.72	55.51	7.46	
7		14.94	111.57	54.26	0.85	
8		15.22	115.41	74.76	0.83	
9		14.32	125.14	68.77	0.82	
10		11.70	140.55	56.02	0.49	
11		10.10	143.28	37.53	0.30	
12		11.06	139.78	20.69	0.30	
13		12.44	142.29	18.99		
14		11.16	146.15	31.84		
15		9.95	146.64	27.40		
16		5.48	154.12	19.14		
17	0.19	0.08	166.10	14.19		
18	0.19	4.54	162.58	11.97		
19	0.19	9.41	160.08	10.53		
20	0.19	8.21	158.70	19.67		
21	0.19	8.58	156.80	26.04		
22	0.15	10.96	142.86	21.95		
23	0.14	12.41	136.61	9.03		
24	0.10	11.30	142.63	11.59		
25	0.10	10.69	119.89	9.44		
26	0.10	11.79	96.27	1.91		
27	0.12	16.19	85.55	0.28		
28	0.11	21.34	69.08	0.19		
29	0.12	23.34	71.69	0.19		
30	4.62	29.94	76.20	0.19		
31		49.69		4.18		
TOTAL	6.51	406.84	3739.56	1013.02	81.10	
AVERAGE	0.47	13.12	124.65	32.68	6.76	
MAX	4.62	49.69	166.10	99.13	16.52	

WY2015 Total: 10,407.55 AF

Maximum Instantaneous Peak: 166.10 cfs on Jun 17

Blank: Recorder not operated. No water diverted

M: Missing Data

Mormon Creek Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second

Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0.15	40.89	27.90	0.62	
2		0.86	47.30	24.95	0.62	
3		3.48	48.19	21.33	0.62	
4		7.14	49.43	18.51	0.63	
5		8.29	51.67	15.61	0.62	
6		9.99	51.30	15.87	0.62	
7		7.82	44.59	19.44	0.62	
8		6.58	46.74	24.09	0.62	
9		6.38	49.95	19.42	0.62	
10		5.38	51.03	13.89	0.33	
11		4.65	55.30	10.99	0.02	
12		5.07	52.94	9.20	0.02	
13		5.68	49.03	8.95		
14		5.49	50.19	18.63		
15		5.43	52.77	16.17		
16		4.54	53.95	10.27		
17		3.94	51.07	7.58		
18		4.31	51.05	7.40		
19		5.76	55.24	7.02		
20		5.01	51.84	7.77		
21		4.92	49.36	11.24		
22		5.62	48.10	9.43		
23		6.24	48.54	6.58		
24		6.01	48.61	6.75		
25		6.08	43.47	6.69		
26		6.34	39.19	4.84		
27		8.38	37.13	3.94		
28		12.04	33.57	3.08		
29		12.71	34.50	1.36		
30		16.99	31.00	0.66		
31		31.51		0.63		
TOTAL	0.00	222.82	1417.97	360.19	5.95	0
AVERAGE	0.00	7.19	47.27	11.62	0.50	0
MAX	0.00	31.51	55.30	27.90	0.63	0

WY2015 total: 3,980.81 AF

Maximum Instantaneous Peak 55.3 cfs on Jun 11

Blank: Recorder not operated. No water diverted

M: Missing Data

North Cunningham Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		1.86	22.55	13.17	0.07	
2		2.34	24.03	11.60	0.07	
3		3.47	24.76	9.11	0.07	
4		3.96	24.07	7.39	0.07	
5		4.80	24.19	6.00	0.07	
6		5.63	23.31	5.46	0.07	
7		4.26	20.42	7.60	0.07	
8		3.88	22.20	9.70	0.07	
9		3.85	23.59	7.94	0.07	
10		2.99	22.66	5.22	0.07	
11		2.61	22.53	4.02	0.04	
12		3.00	20.10	3.12	0.04	
13		3.49	19.37	2.86		
14		3.22	21.94	6.38		
15		3.17	22.11	5.35		
16		2.59	21.77	2.31		
17		2.15	26.82	0.08		
18		2.49	27.94	0.39		
19		3.47	25.66	0.07		
20		2.90	25.18	0.79		
21		2.49	21.43	2.09		
22		2.71	18.97	1.28		
23		3.13	20.08	0.09		
24		2.95	22.45	0.66		
25		2.80	21.17	0.33		
26		3.19	19.17	0.07		
27		4.50	18.04	0.07		
28		7.00	15.83	0.07		
29		7.71	16.33	0.13		
30	1.27	10.75	14.64	0.11		
31		18.49		0.07		
TOTAL						
	1.27	131.84	653.29	113.53	0.75	
AVERAGE	1.27	4.25	21.78	3.66	0.06	0
MAX	1.27	18.49	27.94	13.17	0.07	0

WY2015 Total: 1,786.59 AF
 Maximum Instantaneous Peak: 27.94 cfs on Jun 18
 Blank: Recorder not operated. No water diverted
 M: Missing Data

Middle Cunningham Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0.19	22.85	13.94	0.13	
2		0.39	27.75	12.26	0.11	
3		0.49	29.69	10.21	0.10	
4		1.17	30.80	8.55	0.10	
5		1.85	31.05	7.39	0.10	
6		2.56	31.56	6.88	0.10	
7		2.12	29.12	10.87	0.10	
8		1.76	30.28	12.49	0.10	
9		1.55	32.30	11.15	0.10	
10		1.05	33.88	8.16	0.06	
11		0.89	34.41	6.69	0.02	
12		0.99	34.83	5.66	0.02	
13		1.15	34.55	5.20		
14		1.09	34.71	6.89		
15		1.25	35.06	5.82		
16		1.01	36.41	4.53		
17		0.80	39.43	3.78		
18		0.92	39.60	3.84		
19		1.42	42.87	3.57		
20		1.19	38.62	4.72		
21		1.20	38.04	6.33		
22		1.64	36.24	5.69		
23		1.93	33.99	4.16		
24		1.90	32.22	4.34		
25		1.84	29.10	4.07		
26		2.12	26.50	3.12		
27		2.91	23.33	2.63		
28		4.54	20.00	2.12		
29		5.13	18.22	0.76		
30	0.05	7.31	16.05	0.15		
31		14.66		0.15		
TOTAL	0.05	68.99	943.47	186.12	1.03	
AVERAGE	0.05	2.23	31.45	6.00	0.09	
MAX	0.05	14.66	42.87	13.94	0.13	

WY2015 Total: 2,379.59 AF

Maximum Instantaneous Peak: 42.87 cfs on Jun 19

Blank: Recorder not operated. No water diverted

M: Missing Data

Ivanhoe Creek Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		8.44	76.06	79.25	1.36	
2		10.90	87.61	73.35	1.36	
3		8.84	91.76	63.08	3.44	
4		11.06	91.62	51.84	3.70	
5		17.70	112.58	36.34	3.16	
6		22.17	112.39	31.34	2.27	
7		19.77	101.17	30.93	1.46	
8		18.66	106.64	34.88	1.36	
9		17.98	119.67	33.41	1.36	
10		16.16	123.86	22.72	1.36	
11		14.42	125.59	24.27	1.36	
12		15.58	128.87	21.21	1.36	
13		16.89	126.37	23.37		
14		15.50	126.21	34.03		
15	4.74	14.27	124.78	25.46		
16	9.68	11.91	127.65	16.93		
17	3.72	10.66	125.90	12.49		
18	1.36	11.70	126.98	11.88		
19	1.36	15.56	111.24	11.19		
20	1.36	13.30	127.43	12.98		
21	1.36	12.91	131.85	18.49		
22	1.36	15.10	130.15	17.70		
23	1.36	16.13	128.09	12.09		
24	1.36	15.57	120.49	13.27		
25	1.36	14.85	120.54	13.17		
26	1.36	16.04	114.19	9.55		
27	1.36	20.47	108.24	8.27		
28	1.36	25.71	99.75	3.98		
29	4.93	26.02	93.51	1.43		
30	12.27	31.05	86.04	1.36		
31		55.51		1.36		
TOTAL	50.29	540.85	3407.22	751.59	23.54	
AVERAGE	3.14	17.45	113.57	24.24	1.96	
MAX	12.27	55.51	131.85	79.25	3.70	

WY2015 total: 9,468.22 AF

Maximum Instantaneous Peak 131.85 cfs on Jun 21

Blank: Recorder not operated. No water diverted

M: Missing Data

Lily Pad Creek Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		1.84	11.42	5.11	0.73	
2		1.95	13.72	5.18	0.82	
3		1.98	14.83	3.65	1.12	
4		2.42	16.92	3.12	0.76	
5		3.03	16.71	3.25	0.63	
6		3.36	15.78	3.35	0.57	
7		3.24	14.76	3.16	0.59	
8		3.40	15.23	4.39	0.59	
9		3.44	17.35	3.92	0.51	
10		2.95	16.24	2.85	0.47	
11		2.81	18.98	2.14	0.73	
12		2.90	16.51	1.78	0.00	
13		3.11	14.87	1.68		
14		2.99	14.82	3.13		
15		2.86	15.66	2.52		
16	1.09	2.74	19.38	1.71		
17	1.07	2.74	24.47	1.42		
18	0.99	2.88	19.44	1.37		
19	0.89	3.13	17.89	1.44		
20	0.87	2.77	15.43	1.50		
21	0.81	2.83	12.76	2.39		
22	0.77	3.25	11.34	2.04		
23	0.82	3.53	10.03	1.28		
24	0.82	3.46	8.98	1.75		
25	0.69	3.33	8.27	1.74		
26	0.69	3.69	7.84	1.17		
27	0.71	4.35	7.04	1.06		
28	0.80	5.34	6.16	0.91		
29	1.13	5.72	5.83	0.80		
30	1.64	6.25	4.97	0.75		
31		8.91		0.72		
TOTAL	13.76	107.19	413.63	71.29	7.52	
AVERAGE	0.86	3.46	13.79	2.30	0.63	
MAX	1.64	8.91	24.47	5.18	1.12	

WY2015 Total: 1,216.66 AF

Maximum Instantaneous Peak: 24.47 cfs on Jun 17

Blank: Recorder not operated. No water diverted

M: Missing Data

Granite Creek Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1			18.22	15.63	3.05	
2			24.19	14.84	2.98	
3			26.38	12.99	3.04	
4		0.01	27.03	11.81	2.74	
5		1.31	28.47	11.43	2.57	
6		3.10	29.54	11.30	2.38	
7		2.93	25.83	10.57	2.30	
8		3.02	27.36	12.46	2.27	
9		3.05	30.80	11.69	2.11	
10		2.83	32.53	10.13	2.02	
11		2.58	34.34	8.65	2.59	
12		2.79	34.10	7.99	0.00	
13		3.15	34.63	7.40		
14		2.90	33.21	8.65		
15		2.88	33.31	7.91		
16		2.67	37.26	6.49		
17		2.56	40.09	5.73		
18		2.61	36.97	5.37		
19		3.08	35.89	5.22		
20		2.88	34.68	5.98		
21		2.85	32.99	7.63		
22		3.34	31.46	6.59		
23		3.69	29.36	5.21		
24		3.66	27.99	5.97		
25		3.59	24.56	6.04		
26		3.79	22.63	4.77		
27		4.42	20.93	4.34		
28		5.52	18.90	3.97		
29		6.00	18.38	3.59		
30		7.21	16.46	3.33		
31		12.05		3.22		
TOTAL	0.00	100.46	868.52	246.90	28.06	
AVERAGE	0.00	3.59	28.95	7.96	2.34	
MAX	0.00	12.05	40.09	15.63	3.05	

WY2015 Total: 2,467.36 AF

Maximum Instantaneous Peak: 40.09 cfs on Jun 17

Blank: Recorder not operated. No water diverted

M: Missing Data

No Name Creek Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1			32.22	10.75		
2			42.70	10.55		
3			48.60	9.15		
4			48.25	6.74		
5		1.23	48.15	6.72		
6		2.55	48.96	8.94		
7		2.14	46.06	8.70		
8		2.07	49.60	16.61		
9		2.12	41.84	15.62		
10		0.84	62.45	7.98		
11		0.37	44.03	2.35		
12		0.87	34.67	0.05		
13		1.61	34.41	0.02		
14		1.14	46.67			
15		0.87	61.00			
16		0.08	58.39			
17		0.00	43.05			
18		0.00	45.97			
19		0.76	52.77			
20		0.22	51.17			
21		0.32	44.64			
22		1.38	39.07			
23		2.27	38.40			
24		1.56	37.06			
25		1.35	31.77			
26		1.53	27.59			
27		4.24	23.17			
28		8.32	19.06			
29		9.30	16.63			
30		13.10	13.39			
31		23.09				
TOTAL		83.33	1199.52	93.43	83.33	
AVERAGE		3.09	41.06	8.01	3.09	
MAX		23.09	62.45	16.61	23.09	

WY2015 Total: 2,729.84 AF.

Maximum Instantaneous Peak: 62.45 on Jun 10

Blank: Recorder not operated.

M: Missing Data

Midway Creek Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0.80	44.62	50.30	0.04	
2		0.90	63.74	46.58	0.05	
3		2.09	71.29	39.57	0.05	
4		3.88	73.12	33.93	0.04	
5		7.04	75.37	31.73	0.04	
6		7.87	73.62	32.93	0.04	
7		7.20	67.83	31.12	0.04	
8		7.02	69.76	41.40	0.04	
9		6.37	49.41	38.66	0.04	
10		4.32	72.89	28.72	0.02	
11		3.76	71.41	22.73		
12		4.81	78.31	19.90		
13		5.58	79.26	11.27		
14		4.84	79.53	0.09		
15		3.75	82.96	0.09		
16		1.85	83.02	0.08		
17		1.21	79.55	0.07		
18		1.13	81.26	0.07		
19		3.34	81.42	0.06		
20		2.49	79.79	0.06		
21		2.67	81.49	0.05		
22		4.65	82.11	0.04		
23		5.22	81.39	0.04		
24		4.24	84.77	0.04		
25		3.92	80.91	0.04		
26		5.18	80.22	0.04		
27		7.96	74.25	0.04		
28		11.78	64.75	0.04		
29		12.48	62.90	0.04		
30		17.25	54.88	0.04		
31	0.43	29.61		0.04		
TOTAL	0.43	184.40	2161.21	379.48	0.35	
AVERAGE	0.43	5.97	73.53	13.86	0.04	
MAX	0.43	29.61	84.77	50.30	0.05	

WY2015 Total: 5,406.76 AF. No diversions

Maximum Instantaneous Peak: 84.77 on Jun 24

Blank: Recorder not operated.

M: Missing Data

Hunter Creek Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		0.00	54.92			0
2		0.00	76.41			0
3		0.00	74.94			0
4		0.04	72.49			
5		0.15	73.73			
6		1.40	73.52			
7		0.28	42.04			
8		0.37	0.01			
9		0.27				
10		0.00				
11		0.00				
12		0.00				
13		0.00				
14		0.00				
15		0.00				
16		0.00				
17		0.00				
18		0.00				
19		0.00				
20		0.00				
21		0.00				
22		0.00				
23		0.00				
24		0.00				
25		0.00				
26		0.00				
27		2.28				
28		8.33				
29		8.75				
30		15.88				
31		34.93				0
TOTAL	0.00	72.75	468.16	0.00	0.00	0
AVERAGE	0.00	2.35	15.61	0.00	0.00	0
MAX	0.00	34.93	76.41	0.00	0.00	0

WY2015 Total: 1,073.36 AF

Maximum Instantaneous Peak: 76.41 cfs on Jun 2

Blank: Recorder not operated. No water diverted

M: Missing Data

Sawyer Creek Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1			11.03	15.03	2.63	
2			17.99	14.22	2.64	
3			22.64	12.56	2.64	
4			25.77	11.27	2.31	
5			26.63	10.15	2.12	
6			27.40	9.64	1.98	
7			25.84	9.21	1.90	
8			26.31	10.79	1.86	
9			29.51	11.99	1.72	
10			29.87	10.01	1.62	
11			30.58	8.60	1.61	
12			31.22	7.57	1.09	
13			33.53	7.02		
14			34.09	7.26		
15			34.64	7.03		
16		1.95	37.29	6.12		
17		1.87	38.44	5.60		
18		2.03	33.28	5.41		
19		2.35	32.16	5.24		
20		2.17	31.05	5.06		
21		2.18	29.36	5.44		
22		2.52	27.90	5.17		
23		2.65	26.32	4.49		
24		2.54	25.27	4.85		
25		2.64	22.86	4.99		
26		2.75	21.05	4.28		
27		3.31	19.72	3.88		
28		4.18	18.31	3.55		
29		4.40	17.14	3.25		
30		5.11	15.79	2.99		
31		7.29		2.83		
TOTAL	0.00	49.94	802.99	225.49	24.12	
AVERAGE	0.00	1.61	26.77	7.27	2.01	
MAX	0.00	7.29	38.44	15.03	2.64	

WY2015 Total: 2,186.9 AF

Maximum Instantaneous Peak: 38.44 cfs on Jun 17

Blank: Recorder not operated. No water diverted

M: Missing Data

Chapman Gulch Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		6.09	185.77	126.44		1.71
2		5.68	246.64	122.45		1.71
3		9.79	273.05	105.83		8.51
4		13.33	276.40	92.90		10.59
5		21.68	281.95	84.96		9.64
6		26.55	292.09	91.91		6.67
7		22.72	249.88	82.22		2.73
8		21.55	215.98	116.29		2.57
9		22.57	201.01	115.49		2.46
10		17.65	255.97	86.00		2.10
11		15.24	241.44	66.58		1.71
12		17.69	231.05	57.00		2.01
13	0.69	21.04	235.57	46.81		2.03
14	1.71	18.31	241.09	36.14		1.95
15	1.70	15.91	258.76	31.13		1.95
16	1.71	11.34	273.18	21.82		1.95
17	1.70	9.50	271.06	10.80		1.95
18	1.71	9.41	263.94	10.76		1.95
19	1.68	14.47	265.08	9.56		1.95
20	1.70	12.96	264.36	11.43		1.95
21	1.70	12.45	256.24	19.14		1.95
22	1.71	18.00	244.52	14.82		1.95
23	1.71	21.02	237.43	9.07		1.95
24	1.71	18.75	237.23	14.68		1.95
25	1.71	17.77	214.01	13.70		1.95
26	1.71	19.87	194.64	7.87		1.95
27	1.71	29.94	175.44	5.93		1.95
28	1.71	51.68	151.00	3.02		1.95
29	2.58	56.31	145.01	1.71		1.95
30	6.59	74.42	125.20	1.71		1.95
31		128.52		1.71		
TOTAL	35.44	762.17	7004.99	1419.86		87.58
AVERAGE	1.97	24.59	233.50	45.80		2.92
MAX	6.59	128.52	292.09	126.44		10.59

WY2015 Total: 18,466.48 AF

Maximum Instantaneous Peak: 292.09 cfs on Jun 6

Blank: Recorder not operated. No water diverted

M: Missing Data

Fryingpan River Feeder Conduit near Norrie, CO

WY2015

Unit: Cubic Feet per Second
Source: Bureau of Reclamation

	April	May	June	July	August	September
1		10.08	118.81	141.53		25.19
2		2.34	151.99	135.91		25.46
3		7.44	160.44	110.79		26.57
4		26.36	166.48	96.70		11.05
5		29.89	181.00	85.83		0.78
6		30.39	186.12	81.34		0.78
7		29.23	171.46	75.69		0.78
8		29.92	178.79	87.52		0.78
9		27.64	201.71	78.17		0.78
10		23.00	215.62	64.36		0.78
11		20.41	220.49	70.92		0.79
12		22.05	220.78	72.58		3.50
13		23.91	218.52	62.17		
14		21.77	215.15	56.32		
15		20.38	216.66	51.54		
16		18.01	234.93	47.05		
17		16.28	248.60	42.51		
18		18.60	243.40	39.14		
19		21.85	237.69	37.90		
20		18.97	234.19	42.34		
21		20.98	224.68	48.38		
22		25.09	220.03	45.69		
23		26.20	207.37	38.84		
24		23.62	199.77	43.10		
25		22.87	182.71	43.45		
26		25.38	159.09	37.48		
27		31.29	142.10	34.44		
28		37.98	124.27	32.19		
29	2.09	38.75	128.10	29.65		
30	12.82	49.61	130.93	27.72		
31		78.10		26.66		
TOTAL	14.91	798.43	5741.87	1887.91		97.26
AVERAGE	7.45	25.76	191.40	60.90		3.24
MAX	12.82	78.10	248.60	141.53		26.57

WY2015 Total: 16,939.84 AF

Maximum Instantaneous Peak: 248.60 cfs on Jun 17

Blank: Recorder not operated. No water diverted

M: Missing Data

APPENDIX 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 stream flows 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	AF	Month	Average	AF
	Second-feet	(thousands)		Second-feet	(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, Seventy-Fifth Congress, first 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, Eighty-Seventh Congress, first session), and the Colorado River Compact of November 24, 1922 (House Document 605, Sixty-Seventh Congress, fourth 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 Fryingpan-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, December 9, 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

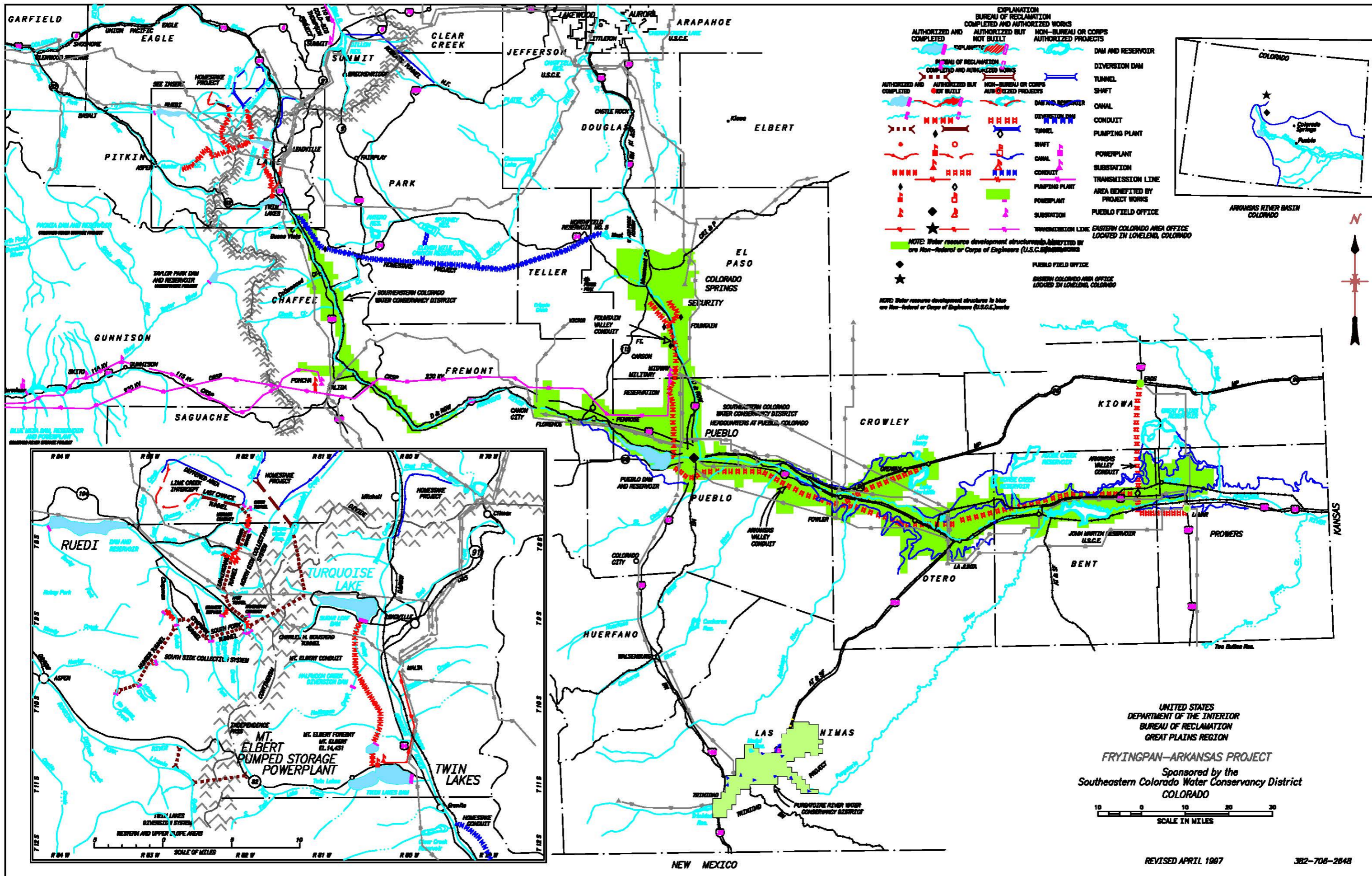
SOUTHWESTERN WATER CONSERVATION DISTRICT

By Ira E. Kelly, President

Attest:

Archie B. Toner,

Secretary

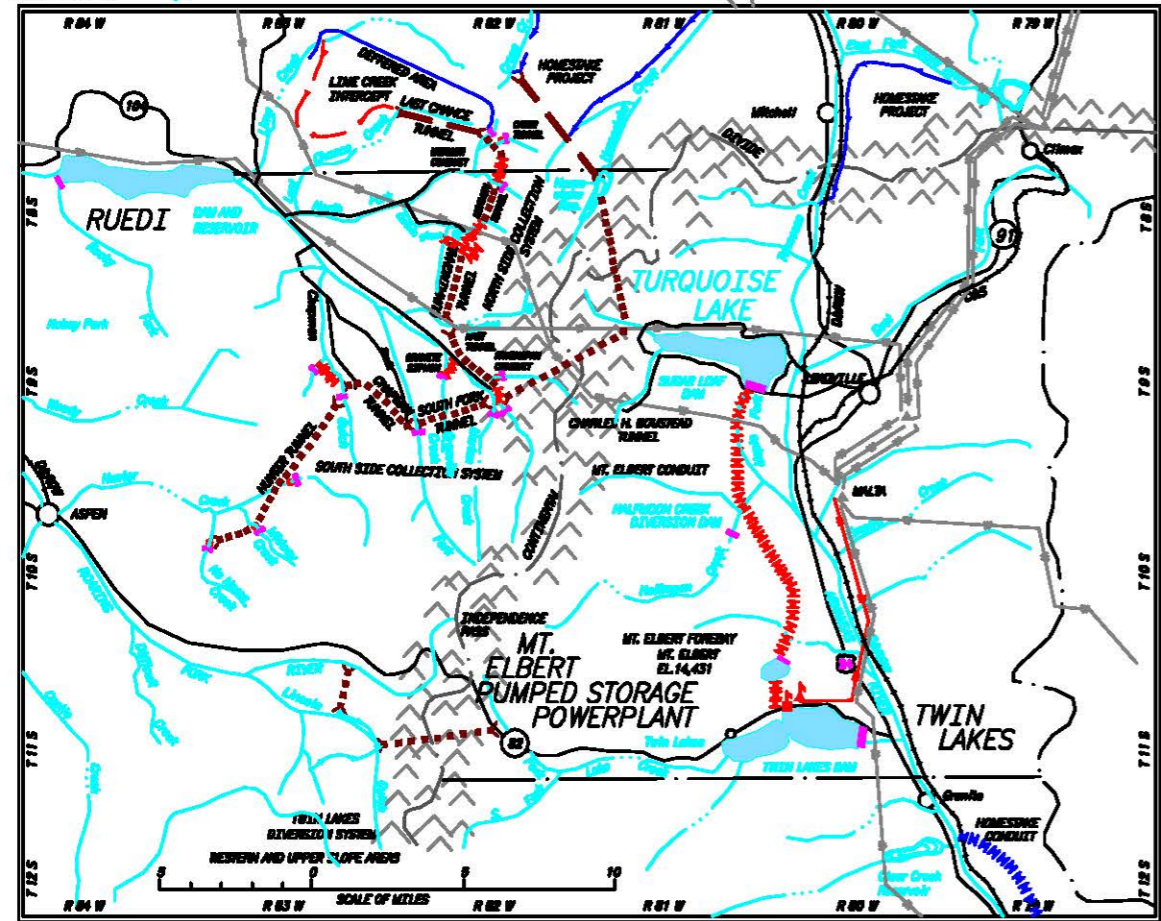


EXPLANATION

	BUREAU OF RECLAMATION COMPLETED AND AUTHORIZED WORKS		NON-BUREAU OR CORPS AUTHORIZED PROJECTS
	BUREAU OF RECLAMATION AUTHORIZED BUT NOT BUILT		NON-BUREAU OR CORPS AUTHORIZED PROJECTS
	NON-BUREAU OR CORPS COMPLETED WORKS		DAM AND RESERVOIR
	NON-BUREAU OR CORPS AUTHORIZED BUT NOT BUILT		DIVERSION DAM
	TUNNEL		SHAFT
	CANAL		CONDUIT
	PUMPING PLANT		POWERPLANT
	SUBSTATION		TRANSMISSION LINE
	AREA BENEFITED BY PROJECT WORKS		PUEBLO FIELD OFFICE
	EASTERN COLORADO AREA OFFICE LOCATED IN LOVELAND, COLORADO		PUEBLO FIELD OFFICE
	SOUTHERN COLORADO AREA OFFICE LOCATED IN LOVELAND, COLORADO		

NOTE: Water resource development structures identified by a Non-Federal or Corps of Engineers (U.S.C.E.) works

NOTE: Water resource development structures in blue are Non-Federal or Corps of Engineers (U.S.C.E.) works



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
GREAT PLAINS REGION

FRYINGPAN-ARKANSAS PROJECT
Sponsored by the
Southeastern Colorado Water Conservancy District
COLORADO

10 0 10 20 30
SCALE IN MILES