

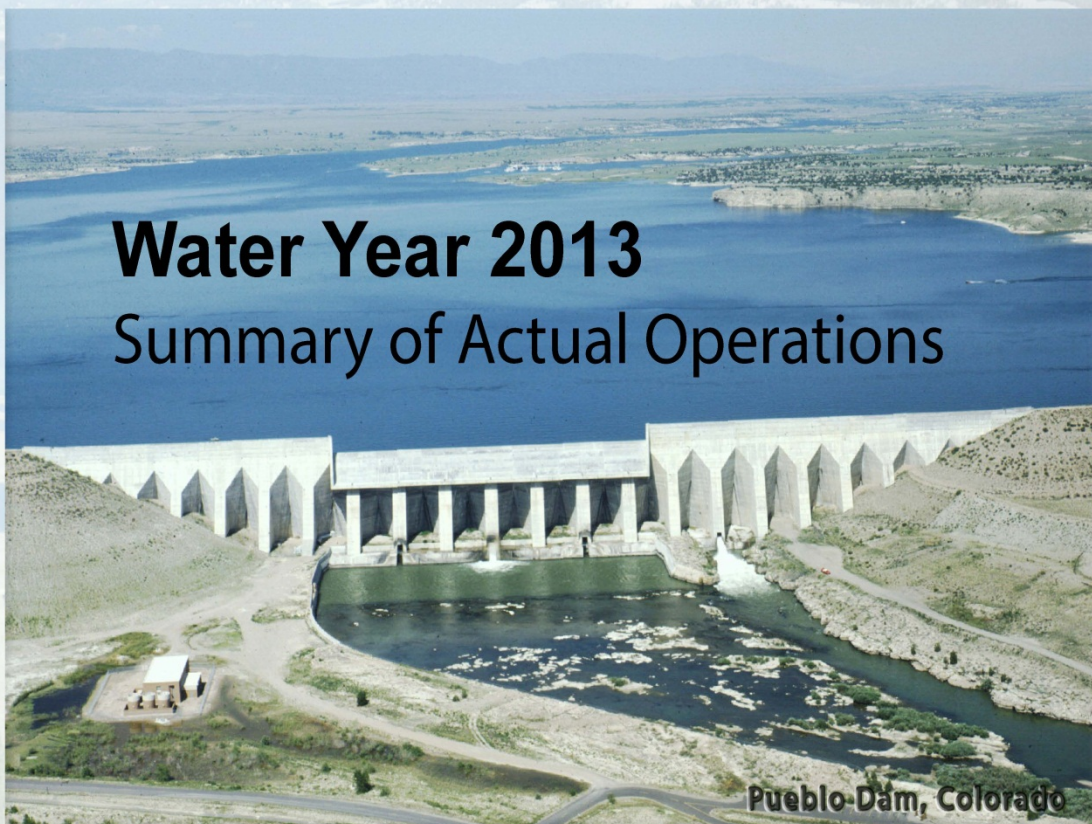
RECLAMATION

Managing Water in the West

Annual Operating Plan

Fryingpan — Arkansas Project

Water Year 2013 Summary of Actual Operations



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

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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 Powerplant 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

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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 Fryingpan-Arkansas 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
September 2010	Repairs were made on the cracked rotor on Unit 1 at the Mt. Elbert Powerplant and the unit was put back into service.
May 2011	Reclamation issued Colorado Springs Utilities a special work permit allowing construction to begin on the Southern Delivery System (SDS).
July 2012	Tested modified River Outlet at the North Outlet Works at Pueblo Dam
September 2012	Control of west slope systems from the east slope completed
August 9, 2013	Arkansas Valley Conduit Long-Term Excess Capacity Master Contract Final Environmental Impact Statement issued

I. GENERAL

This is the 44th annual operating plan 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 powerplant, electric transmission lines, substations, and recreation facilities. These features are located in the Fryingpan River and Hunter Creek watersheds of the upper Colorado River Basin, and in the Arkansas River Basin in central and southeastern Colorado. The project provides water for irrigation, municipal and industrial use, hydroelectric power generation, recreation, and wildlife habitat. The project also provides for flood control.

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

This annual operating plan is a summary of the actual project operation in Water Year (WY) 2013 (October 1, 2012 through September 30, 2013).

II. PROJECT FEATURES IN OPERATION DURING WY 2013

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

The west slope collection system, located upstream of Ruedi Reservoir in the upper Fryingpan River and Hunter Creek watersheds, is a series of 16 stream diversion structures and eight tunnels. The system collects spring snowmelt runoff for diversion, by gravity, to the inlet of the Charles H. Boustead Tunnel. The Boustead Tunnel conveys water collected by the west slope collection system under the continental divide and into Turquoise Lake on the east slope. The tunnel is 5 miles long and has a water conveyance capacity of 945 cubic feet per second (cfs). Sugar Loaf 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 acre-feet at a water surface elevation of 9,869.4 feet. The lake is operated to provide regulation of both project and non-project water imported from the west slope. Turquoise Lake is operated on an annual cycle, as is Ruedi Reservoir. 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 Powerplant, 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. All conduit flow which reaches the Mt. Elbert Forebay is used to generate electricity at the Mt. Elbert Powerplant as it is delivered to Twin Lakes.

The Mt. Elbert Powerplant 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-acre-foot 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 capacity of 140,855 acre-feet at a maximum water surface elevation of 9,200 feet. 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. The reservoir is the terminal storage facility for the Fryingpan-Arkansas Project and has a total storage capacity of 349,940 acre-feet at a water surface elevation of 4,898.7 feet. The upper 26,991 acre-feet of storage space are reserved exclusively for flood control at all times, while an additional 66,000 acre-feet 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 the reservoir. The Fountain Valley Authority, the Pueblo West Metropolitan District, and the Pueblo Board of Water Works take direct delivery of municipal water through the south outlet works and joint-use manifold. A direct irrigation delivery is made to the Bessemer Ditch. Releases from the fish hatchery outlet at Pueblo Dam support the Pueblo Fish Hatchery. Other project deliveries are made as releases to the Arkansas River for diversion downstream.

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

III. HYDROLOGIC CONDITIONS AND WEATHER EVENTS IN WY 2013

Precipitation over the Fryingpan watershed above Ruedi Reservoir was below average most of WY2013. The year started out in October at 79 percent of average. November received precipitation at 47 percent of average. There was a slight increase in December, up to 67 percent of average; however, precipitation hovered around 60 percent until early spring. In March, the weather started to change for the better, and precipitation amounts increased from the mid-60s to 93 percent of average in May. Monsoonal storms brought September up to 99 percent of average.

Accumulation rates at the group of SNOTEL sites used to forecast inflow and plan operations at Ruedi Reservoir (Fremont Pass, Ivanhoe, Nast Lake, and Kiln) were well below average for October through February. Snowpack never exceeded 70 percent of average for this period. March snow accumulation rates picked up a little but never caught up with the 30-year average for the group. The higher elevation sites accumulated snow closer to average than the lower sites. Ivanhoe, for example, exceeded the average for the site in mid-April and remained above average until it melted out. All sites were out of snow 18 days before their average melt out date.

Average daily temperatures at the SNOTEL sites in and around the upper Fryingpan River Basin were mostly above average for the entire year. In the late fall and early winter months, temperatures ranged from above to much above average. After December, temperatures dipped a little and reached negative values and single digits. February had the coldest temperatures and was below average. The spring months warmed up quickly with June reaching the highest temperatures for the year at slightly above average. The fall did not see much of a cool down and September saw temperatures at slightly above average for the month.

The cumulative inflows to Ruedi Reservoir from October until the end of March were 47 percent of average. Over the period of April through July, inflows averaged 64 percent of average. The total inflow to Ruedi Reservoir over the April to July period was 57,482 acre-feet and is the fifth lowest over the last 30 years. Inflow during the spring months reached a seasonal peak on

June 11 of 812 cfs. Toward the end of the year, monsoonal storms added much needed precipitation to the basin which produced the one month with above average inflow to the reservoir. September inflows accumulated to 160 percent of average.

Drought conditions persisted across the entire upper and lower Arkansas River Basin at the beginning of WY2013. Imports from the Fryingpan River Basin were below average; although a cooler and wetter late spring brought them much higher than last year's totals. Below-normal precipitation continued until September. At that time humid air, a high pressure system east of the mountains and a low pressure system to the west combined to bring record rainfall north of the basin. The Arkansas River saw little of the flooding from Colorado Springs to Wyoming, but flooding on Fountain Creek caused the stage at Avondale to peak at 9.38 feet, above the flood stage of 7.0 feet, briefly on September 14. This exceeded the safe channel capacity of 6,000 cfs and initiated flood control actions and triggered an internal alert at Pueblo Reservoir. The slightly below-average monsoons combined with the average snowpack and much above-average September rainfall, although ending with a yearly precipitation total below normal, brought the basin from U.S. Drought Monitor levels ranging from exceptional to severe down to levels ranging from moderate to normal.

IV. SUMMARY OF OPERATIONS DURING WY 2013

A. Ruedi Reservoir

Ruedi Reservoir started out WY2013 with a storage content of 65,853.59 acre-feet, which is 76 percent of average. In mid-October, the release from Ruedi Reservoir was decreased to the winter minimum flow of 40 cfs and held at this rate until May. This was the lowest winter release since WY2002. These releases were made through the City of Aspen's hydroelectric powerplant.

By April 1 2013, Ruedi Reservoir was drafted down to the year's lowest storage content of 61,368 acre-feet. Snow was still accumulating at the SNOTEL sites and runoff was still below average. The most probable forecast of inflow for April called for 82,400 acre-feet. This forecast projected that Ruedi Reservoir would not fill under both the most probable case and the minimum reasonable case. On April 13, Ruedi Reservoir was called out of storage priority by a senior water right call from a Grand Valley irrigation entity requiring Ruedi Reservoir to pass all inflow and make contract releases. The call lasted four days, ending on April 17 when Ruedi Reservoir was allowed to store inflow again.

Runoff increased in early May. On May 1, the releases from Ruedi Reservoir were increased to 105 cfs to meet the required flow target of 110 cfs at the gage below the dam. At this time Rocky Fork Creek was contributing 5 cfs to the Fryingpan River, so the combined flow met the minimum streamflow requirement. Snow accumulation peaked in May and followed the average melt rate for the month. The most probable forecast of inflow for May called for 98,200 acre-feet. This forecast was similar to April's which also projected that Ruedi Reservoir would not physically fill. On May 11, the Colorado River District placed a call for the Ruedi Reservoir senior storage right. This called out all junior depletions above Ruedi Reservoir. The call was placed because Reclamation's May 1 forecast predicted Ruedi Reservoir would fall short of

filling by approximately 4,000 acre-feet. The call disallowed the Boustead Tunnel junior water right of 45 cfs and limited Fryingpan diversions to 900 cfs. Hunter Creek diversions were allowed to continue through the Boustead Tunnel and the amount of diversion above 900 cfs was constrained to the lesser of half the Hunter Creek flow or 45 cfs. This call expired on July 22 and during the call period Ruedi Reservoir paper-filled to 97,289 acre-feet.

Ruedi Reservoir is a participating reservoir 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. Ruedi Reservoir did not participate in CROS this year because the May 1 runoff forecast did not project the reservoir physically filling.

Ruedi Reservoir reached a maximum content for the year of 95,629 acre-feet on July 20. This storage content was 96 percent of the 30-year average for that day. Releases from the reservoir never exceeded 300 cfs for the year and averaged 143 cfs from May through September.

Senior water right calls by irrigation entities in the Grand Valley came on again on July 22 and remained in effect until September 13. Over this time period and the 3 days in April, Ruedi Reservoir bypassed all inflow and released 1,782.5 acre-feet of water for contracts. On July 10, 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 10,412 acre-feet was released between July 10 and October 12, 2012. This total includes 5,000 acre-feet of firm endangered fish water and 5,412 acre-feet of mitigation water released from Ruedi Reservoir. No releases were made from the four out of five fish pool because the reservoir did not physically fill.

Ruedi Reservoir ended the water year at a surface elevation of 7,749.21 feet and 86,508 acre-feet in storage. That volume was 103 percent of average for this date. The total inflow volume for the April through July period in 2013 was 57,482 acre-feet which is 64 percent of average and is the fifth lowest since 1980.

B. West Slope Collection System and Project Diversions

The most probable forecasts for the first of February, March, April, and May were 15,700 acre-feet, 25,700 acre-feet, 24,700 acre-feet, and 47,200 acre-feet, respectively, reflecting the increase in snow accumulation in the spring.

A total of 46,643.14 acre-feet of water was imported to the east slope during the WY2013, which is 96 percent of average for the period from WY1972 to WY2013 and 99 percent of the May 2013 forecast. The maximum mean daily import through Boustead Tunnel was 926.46 cfs on June 11, 2013.

The import of project water through the Boustead Tunnel began on May 12, 2013. The diversion system was shut down the week of August 19-23. Boustead Tunnel seepage was recorded whenever the Fryingpan-Arkansas Project water rights were in priority. The daily discharge

records for the diversion structures are included as Appendix D. There was no Busk-Ivanhoe water imported through the Boustead Tunnel.

Ruedi Reservoir was not forecasted 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, Twin Lakes Reservoir Canal Company and others, imports through the Boustead Tunnel were constrained to a maximum of 900 cfs. Project water rights originating from Hunter Creek, Midway Creek and No Name Creek are not subject to the call of the more senior Ruedi Decree and can be diverted under the Boustead Tunnel Enlargement water right. The sum of the minimum flows from the Hunter, No Name and Midway diversions, up to a total of 90 cfs, was split evenly between imports through the Boustead Tunnel and inflow to Ruedi Reservoir allowing tunnel imports of up to a maximum of 945 cfs. During Boustead Tunnel operations, a total of 12 acre-feet was over-diverted through the Boustead Tunnel. This 12 acre-feet was repaid to the west slope by increasing the bypass from Chapman Tunnel.

The total imports for the water year, the accumulated imports to the Arkansas River, the water used for the Twin Lakes Reservoir and Canal Company exchange, and the import water available for allocations by the Southeastern Colorado Water Conservancy District are shown on Table 5 (Appendix A). The 44 years of accumulated imports total 2,141,100 acre-feet, for an average of 48,686 acre-feet per year. A plot of the Boustead Tunnel imports from the west slope to the east slope during WY2013 is shown on Exhibit 5 (Appendix B).

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

The Bureau of Reclamation is obligated to maintain minimum stream flows in the Roaring Fork River by the authorizing legislation of the project. This is accomplished through an exchange of water with the Twin Lakes Reservoir and Canal Company. On October 1, 2012, the company began bypassing water into the Roaring Fork River on the west slope in exchange for project water stored in Twin Lakes on the east slope.

The total amount of the exchange was 2,808 acre-feet with a net credit to Twin Lakes Canal Company of 2,784 acre-feet. The operating criteria and the monthly summary of the exchange are shown in Appendix C. The full 3,000 acre-feet of exchange was not realized because the Twin Lakes Canal started getting called in and out of priority from diverting water starting on July 24, 2013.

D. Turquoise Lake

On September 30, 2012, there were 66,857 acre-feet of water (elevation of 9,831.14 feet) stored in Turquoise Lake, 59 percent of average. Releases made down Lake Fork Creek and to Twin Lakes through the Mt. Elbert Conduit drafted Turquoise Lake to 26,838 acre-feet (elevation 9,797.63 feet), the lowest storage of the water year, by April 30, 2013. The high point for storage was 103,986 acre-feet of water (elevation 9,854.74 feet) on September 19, 2013. At the end of the water year on September 30, 2013, there was 103,160 acre-feet, an elevation 9,854.25 feet, which is 91 percent of average.

Homestake Tunnel was closed for renovations to Homestake Reservoir until May 29. Imports using the Homestake Tunnel ran until July 17 and for an additional few days in September, totaling 19,073.25 acre-feet during the water year. Repairs to the face of Homestake Dam will continue into WY2014.

Busk-Ivanhoe imports through the Carlton Tunnel totaled 4,072.69 acre-feet and were divided evenly between the Pueblo Board of Water Works and the City of Aurora.

Project water imports through the Boustead Tunnel totaled 46,643.14 acre-feet, 96 percent of average.

Exhibits 5, 6, and 7 (Appendix B) show the monthly imports through the Boustead, Homestake, and Busk-Ivanhoe Tunnels, respectively. Exhibits 8 and 9 (Appendix B) show the monthly precipitation at Ruedi Reservoir and Turquoise Lake, respectively. Exhibit 10 (Appendix B) shows the evaporation at Turquoise Lake. Table 6 (Appendix A) and Exhibit 11 (Appendix B) depict the monthly operation of Turquoise Lake during WY2013.

E. Mt. Elbert Conduit/Halfmoon Creek Diversion

During WY2013, 37,134.51 acre-feet of water released from Turquoise Lake through the Sugar Loaf Powerplant and 9,495.29 acre-feet of water diverted from Halfmoon Creek, were conveyed through the Mt. Elbert Conduit to the Mt. Elbert Forebay, and subsequently to Twin Lakes through the Mt. Elbert Powerplant. An additional 3,909.48 acre-feet of water were released into the conduit from Turquoise Lake for use by the Leadville Federal Fish Hatchery. The water delivered to the hatchery was returned to the Arkansas River and stored in Pueblo Reservoir.

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

The storage in Twin Lakes was 97,942 acre-feet of water (Twin Lakes elevation 9,632.44 feet and Mt. Elbert Forebay elevation 9,182.00 feet) on September 30, 2012, which is 85 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 was stored in the Twin Lakes Canal Company storage space from November 15 through March 15 as winter water storage. A total of 3,570.3 acre-feet of project water, which is the minimum of 15 cfs/day, was released to Lake Creek during this time. Normally, this water is released such that the flow in the Arkansas River at the Wellsville gage is maintained as close as possible to the average of 250 cfs seen during the October 15 to November 15 trout-spawning flow. Because of extremely low storages at Twin Lakes and Turquoise and the Colorado Parks and Wildlife decision to use the limited available Voluntary Flow Management Program water for rafting in the summer of 2012, the flows at Wellsville from October 1 to July 10 and August 19 to September 30 reflects minimum releases from the reservoirs and local native flow.

The combined reservoir and forebay water storage reached a low point of 89,424.53 acre-feet on April 16, and was at its high point of 125,411.68 acre-feet on June 29. On September 30, 2012, Twin Lakes held 90,038 acre-feet (elevation 9,178.07 feet) and Mt. Elbert Forebay held 8,801 acre-feet (elevation 9,635.91 feet), the combined total of which was 78 percent of average.

A total of 14,000 acre-feet of Fryingpan-Arkansas Project water was made available to the Upper Arkansas Voluntary Flow Management Program (VFMP). On behalf of the VFMP, Colorado Parks and Wildlife staff called for the release of 13,749 acre-feet to augment rafting flows and support the fishery in the Arkansas River during the period of July 11, 2013 to September 30, 2013.

At least one generating/pumping unit was available at the Mt. Elbert Powerplant throughout WY2013. The capacity of one unit is greater than the capacity of the Mt. Elbert Conduit. A total of 339.139 megawatt hours of energy was generated at the powerplant, with 997,845 acre-feet of water; 46,630 acre-feet came through the Mt. Elbert Conduit; and 944,044 acre-feet were first pumped to the Mt. Elbert Forebay from Twin Lakes during off-peak electric demand hours. Table 8 (Appendix A) depicts the monthly powerplant operation for WY2013.

G. Pueblo Reservoir

The water storage content of Pueblo Reservoir was 163,244.16 acre-feet (elevation 4,856.76 feet) on September 30, 2012, 117 percent of average. Project water released from Turquoise Lake, through the Leadville Federal Fish Hatchery and from Twin Lakes, was stored in Pueblo Reservoir through the winter and spring. A total of 20,145 acre-feet of native inflow and 1,899 acre-feet of winter water carryover were stored in the reservoir under the winter water storage program between November 15, 2012, and March 14, 2013. During the water year, 37,876.52 acre-feet of winter water and 369.51 acre-feet of winter water carryover were released. Evaporation cost another 16,242.97 acre-feet. The reservoir reached a high point in storage of 177,064 acre-feet (elevation 4859.35 feet) on March 14, 2013, and a low point on July 23, 2013, at 120,710 (elevation 4843.02 feet). There were 129,480 acre-feet (elevation 4,846.05 feet) in storage on September 30, 2013. This is 94 percent of average.

The September 2013 record rain event in northern Colorado caused flooding along the headwaters of Fountain Creek in the vicinity of Colorado Springs extending to downstream locations. At the request of the State of Colorado, flows from Pueblo Dam were reduced on September 13 and 14 as flooding along Fountain Creek contributed to flooding in the lower reaches of the Arkansas River below the confluence with Fountain Creek. Reclamation stored inflows at Pueblo Dam in anticipation of the Avondale gage on the Arkansas River exceeding 6,000 cfs.

Table 9 (Appendix A) and Exhibit 20 (Appendix B) depict Pueblo Reservoir monthly operations during WY2013. The 2012-2013 winter water storage is shown on Exhibit 17 (Appendix B), and the winter water releases are shown on Exhibit 18 (Appendix B). The pan evaporation at the reservoir is shown on Exhibit 19 (Appendix B). Project water flows are shown on Table 9 (Appendix A) and Exhibit 21 (Appendix B).

H. Storage Contracts

There were 12 long-term contracts for storage of non-project water in project storage space on the east slope in effect in WY2013. Six of those are permanent contracts: The Twin Lakes Reservoir and Canal Company for 54,452 acre-feet in Twin Lakes Reservoir; the City of Colorado Springs for 17,416 acre-feet; the City of Aurora for 5,000 acre-feet; the Pueblo Board of Water Works for 5,000 acre-feet; Busk-Ivanhoe, Inc., for 10,000 acre-feet; and the Homestake Project for 30,000 acre-feet in Turquoise Reservoir. There are six long-term contracts in Pueblo Reservoir: Pueblo Board of Water Works for 9,000 acre-feet, the City of Aurora for 10,000 acre-feet, Colorado Springs for 18,000 acre-feet, Pueblo West for 8,000 acre-feet, Fountain for 700 acre-feet, and Security for 500 acre-feet. Nineteen contracts totaling 15,874 acre-feet were one-year contracts for "if-and-when" storage space in Pueblo Reservoir. Under "if and when" contracts, non-project water may be stored in project storage space as long as that storage space is not required for project water.

I. Project Water Sales and Deliveries

There were 37,647 acre-feet of Fryingpan-Arkansas Project water made available to the Southeastern Colorado Water Conservancy District (District) during WY2013 for allocation. The District purchased 37,647 acre-feet and called for 34,666.59 acre-feet of project and project carryover water during the year. Evaporation reduced the project carryover water in storage by 9,046.33 acre-feet. By the end of the water year (September 30, 2013), the District had 21,807.45 acre-feet of 2013 allocated water and 94,704.81 acre-feet of carryover water remaining in storage. Of the 34,666.59 acre-feet of project water released, 19,664.56 acre-feet were for municipal and industrial use, and 15,002.03 acre-feet were for irrigation. The monthly release of project water from Pueblo Reservoir is shown on Exhibit 21 (Appendix B).

J. Reservoir Storage Allocation Data

Table 10 (Appendix A) presents the reservoir storage allocations for the five project reservoirs.

K. Reservoir Evaporation and Precipitation

Tables 12 and 13 (Appendix A) 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 (Appendix A). The assumption is that there is no evaporation from a reservoir water surface when ice completely covers the reservoir.

L. Flood Control Benefits

Ruedi Reservoir is not designated as a flood control structure. However, the Army Corps of Engineers estimates flood damages prevented by the dam over the course of the year. This year, the Corps of Engineers estimated that the operations at Ruedi Reservoir during WY2013 did not

prevent flood damages. Since impoundment, Ruedi Reservoir has prevented a total of \$3,002,000 in flood damages.

The snowpack in the Arkansas River Basin was below average during most of WY2013 but recovered to near normal levels in May. Runoff and the monsoon season were average to slightly below average. In September, there were record storms to the north of the Arkansas River Basin but flooding impacts were confined to Fountain Creek and the Arkansas River below the confluence with Fountain Creek. The gage on the Arkansas River at Avondale briefly exceeded the maximum safe channel capacity of 6,000 cfs, a stage of 7.0 feet. It reached 9.38 feet on September 14 and the State of Colorado requested reduced flows from Pueblo Dam. The Army Corps of Engineers estimated the operations at Pueblo Reservoir prevented \$383,900 of flood damages during WY2013. Since impoundment, Pueblo Reservoir has prevented a total of \$31,860,100 in flood damages.

Table 14 (Appendix A) shows the historic flood control benefits provided by Pueblo and Ruedi Dams.

APPENDIX A: TABLES

1. Ruedi Reservoir WY 2013 Operations

Unit: 1,000 AF

Month	Inflow	Evaporation	Outflow	End of Month Content	Water Surface Elevation (msl)
Oct 2012	2.8	0.0	3.7	65.0	7722.97
Nov 2012	0.6	0.0	1.2	64.5	7722.20
Dec 2012	1.2	0.0	1.9	63.8	7721.26
Jan 2013	1.5	0.0	2.4	62.9	7720.05
Feb 2013	1.3	0.0	2.1	62.1	7718.95
Mar 2013	1.7	0.0	2.4	61.4	7717.96
Apr 2013	3.7	0.0	2.5	62.6	7719.60
May 2013	18.6	0.2	6.3	74.7	7735.36
Jun 2013	25.1	0.6	5.1	94.1	7757.51
Jul 2013	10.1	0.6	10.6	93.1	7756.43
Aug 2013	6.4	0.4	12.6	86.5	7749.24
Sep 2013	8.7	0.2	8.9	86.1	7748.73
Total	81.7	2.0	59.7		

2. Ruedi Reservoir Releases for Contracts

Unit: 1,000 AF

	0.0404	0.456	0.254
	0.006	0.036	
	0.338	0.704	3.385
			0.659

3. Ruedi Reservoir Releases for Endangered Fish, WY 2013

FRYINGPAN-ARKANSAS PROJECT
RUEDEI RESERVOIR
RELEASES FOR ENDANGERED FISH
WATER YEAR 2013
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)	RUEDEI CALLED OUT? (Y= YES) (N= NO)	REQUIRED MIN FLOW w/o FISH REL (CFS)	REQUIRED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
MON	4/1/2013	7,717.95	61,369	38	0	42	2	44	N	39	0	0	857
TUE	4/2/2013	7,717.95	61,369	42	0	42	2	44	N	39	0	0	692
WED	4/3/2013	7,717.95	61,369	42	0	42	2	44	N	39	0	0	581
THU	4/4/2013	7,717.97	61,383	49	0	42	2	44	N	39	0	0	473
FRI	4/5/2013	7,718.01	61,412	56	0	42	2	44	N	39	0	0	367
SAT	4/6/2013	7,718.06	61,448	60	0	42	2	44	N	39	0	0	338
SUN	4/7/2013	7,718.11	61,484	60	0	42	2	44	N	39	0	0	265
MON	4/8/2013	7,718.19	61,541	71	0	42	2	44	N	39	0	0	239
TUE	4/9/2013	7,718.22	61,563	53	0	42	2	44	N	39	0	0	272
WED	4/10/2013	7,718.24	61,577	48	0	41	2	43	N	39	0	0	255
THU	4/11/2013	7,718.26	61,591	48	0	41	2	43	N	39	0	0	174
FRI	4/12/2013	7,718.28	61,606	48	0	41	2	43	N	39	0	0	84
SAT	4/13/2013	7,718.32	61,635	55	0	41	2	43	Y	57	0	0	74
SUN	4/14/2013	7,718.37	61,671	59	0	41	2	43	Y	61	0	0	87
MON	4/15/2013	7,718.43	61,714	67	0	46	2	48	Y	69	0	0	132
TUE	4/16/2013	7,718.36	61,663	51	0	76	2	78	Y	53	0	0	341
WED	4/17/2013	7,718.42	61,707	63	0	41	2	44	N	39	0	0	616
THU	4/18/2013	7,718.42	61,707	41	0	41	2	43	N	39	0	0	572
FRI	4/19/2013	7,718.43	61,714	45	0	41	2	43	N	39	0	0	363
SAT	4/20/2013	7,718.46	61,736	52	0	41	2	43	N	39	0	0	224
SUN	4/21/2013	7,718.50	61,764	56	0	41	2	44	N	39	0	0	198
MON	4/22/2013	7,718.56	61,808	63	0	42	2	44	N	39	0	0	182
TUE	4/23/2013	7,718.59	61,829	52	0	42	2	44	N	39	0	0	198
WED	4/24/2013	7,718.60	61,837	45	0	41	2	44	N	39	0	0	232
THU	4/25/2013	7,718.64	61,865	56	0	41	2	43	N	39	0	0	215
FRI	4/26/2013	7,718.69	61,901	59	0	41	2	44	N	39	0	0	124
SAT	4/27/2013	7,718.77	61,959	71	0	41	3	44	N	39	0	0	70
SUN	4/28/2013	7,718.94	62,082	103	0	42	3	44	N	39	0	0	132
MON	4/29/2013	7,719.23	62,292	148	0	42	3	44	N	39	0	0	411
TUE	4/30/2013	7,719.60	62,560	191	0	56	3	59	N	39	0	0	953
Averages		7,718.42	61,705	63	0	43	2	45		42	0		324
Totals (acft)				3,761	0	2,577	124	2,702		2,489	0	0	19,288

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/12. A total of 10,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish, WY 2013 (cont'd)

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2013
 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)
WED	5/1/2013	7,719.91	62,786	213	0	99	3	102	N	110	0	0	1,581
THU	5/2/2013	7,720.02	62,866	151	3	108	4	111	N	110	0	0	1,750
FRI	5/3/2013	7,720.12	62,938	148	3	108	4	112	N	110	0	0	1,282
SAT	5/4/2013	7,720.23	63,019	151	3	108	4	112	N	110	0	0	930
SUN	5/5/2013	7,720.31	63,077	141	3	108	5	113	N	110	0	0	865
MON	5/6/2013	7,720.45	63,179	163	3	109	5	113	N	110	0	0	949
TUE	5/7/2013	7,720.67	63,340	193	3	109	5	114	N	110	0	0	1,256
WED	5/8/2013	7,720.93	63,530	208	3	109	5	114	N	110	0	0	1,561
THU	5/9/2013	7,721.12	63,669	182	3	108	6	114	N	110	0	0	1,802
FRI	5/10/2013	7,721.28	63,787	171	3	109	6	115	N	110	0	0	1,757
SAT	5/11/2013	7,721.47	63,927	183	3	109	6	115	N	110	0	0	1,623
SUN	5/12/2013	7,721.76	64,140	220	3	109	6	116	N	110	0	0	1,719
MON	5/13/2013	7,722.22	64,479	277	3	102	6	109	N	110	0	0	2,164
TUE	5/14/2013	7,722.83	64,931	333	3	102	7	109	N	110	0	0	3,205
WED	5/15/2013	7,723.57	65,480	382	3	102	7	109	N	110	0	0	4,512
THU	5/16/2013	7,724.45	66,138	439	3	104	10	114	N	110	0	0	5,678
FRI	5/17/2013	7,725.37	66,830	456	3	104	14	118	N	110	0	0	6,798
SAT	5/18/2013	7,726.36	67,579	486	3	104	19	124	N	110	0	0	7,707
SUN	5/19/2013	7,727.11	68,151	397	3	105	21	126	N	110	0	0	7,492
MON	5/20/2013	7,727.69	68,596	333	3	105	18	123	N	110	0	0	6,373
TUE	5/21/2013	7,728.15	68,950	287	3	105	16	121	N	110	0	0	5,056
WED	5/22/2013	7,728.51	69,229	248	3	105	14	119	N	110	0	0	4,239
THU	5/23/2013	7,728.96	69,578	284	3	105	13	119	N	110	0	0	4,013
FRI	5/24/2013	7,729.62	70,092	365	3	102	17	119	N	110	0	0	4,980
SAT	5/25/2013	7,730.44	70,734	421	3	94	22	116	N	110	0	0	6,262
SUN	5/26/2013	7,731.38	71,475	472	3	95	25	119	N	110	0	0	6,912
MON	5/27/2013	7,732.40	72,285	507	3	95	27	122	N	110	0	0	7,350
TUE	5/28/2013	7,733.39	73,077	498	3	95	27	121	N	110	0	0	7,456
WED	5/29/2013	7,734.24	73,763	433	3	84	25	109	N	110	0	0	6,855
THU	5/30/2013	7,734.86	74,265	343	4	86	22	108	N	110	0	0	5,753
FRI	5/31/2013	7,735.36	74,671	302	4	93	20	113	N	110	0	0	4,572
Averages		7,725.65	67,115	303	3	103	13	115		110	0		4,015
Totals (acft)				18,617	196	6,310	771	7,081		6,764	0	0	246,848

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/12. A total of 10,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish, WY 2013 (cont'd)

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2013
 June

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL RESERVOIR RELEASE (CFS)	ROCKY FORK CREEK (CFS)	FRYINGPAN RIVER GAGE BELOW DAM (CFS)	RUEDI CALLED OUT? (Y= YES) (N= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
SAT	6/1/2013	7,735.87	75,088	312	9	94	19	113	N	110	0	0	3,674
SUN	6/2/2013	7,736.45	75,563	342	9	94	20	114	N	110	0	0	3,224
MON	6/3/2013	7,737.31	76,272	453	9	88	22	110	N	110	0	0	3,623
TUE	6/4/2013	7,738.17	76,984	456	9	88	24	112	N	110	0	0	4,634
WED	6/5/2013	7,739.08	77,742	479	9	88	26	113	N	110	0	0	5,376
THU	6/6/2013	7,740.27	78,741	596	9	83	29	112	N	110	0	0	6,150
FRI	6/7/2013	7,741.23	79,552	501	9	83	30	113	N	110	0	0	6,818
SAT	6/8/2013	7,742.17	80,353	491	9	79	30	108	N	110	0	0	6,477
SUN	6/9/2013	7,743.38	81,390	611	9	79	30	109	N	110	0	0	6,581
MON	6/10/2013	7,744.91	82,715	756	9	79	31	110	N	110	0	0	7,091
TUE	6/11/2013	7,746.56	84,159	814	9	77	33	110	N	110	0	0	7,573
WED	6/12/2013	7,747.93	85,369	699	9	79	32	111	N	110	0	0	7,204
THU	6/13/2013	7,749.00	86,321	569	9	80	30	110	N	110	0	0	6,594
FRI	6/14/2013	7,749.89	87,117	490	10	79	28	107	N	110	0	0	5,994
SAT	6/15/2013	7,750.69	87,837	451	10	78	27	105	N	110	0	0	5,602
SUN	6/16/2013	7,751.34	88,425	384	10	78	25	103	N	110	0	0	5,034
MON	6/17/2013	7,751.93	88,960	358	10	79	23	102	N	110	0	0	4,378
TUE	6/18/2013	7,752.46	89,443	333	10	80	21	101	N	110	0	0	3,922
WED	6/19/2013	7,752.97	89,910	328	10	83	18	102	N	110	0	0	3,643
THU	6/20/2013	7,753.45	90,350	326	10	94	17	111	N	110	0	0	3,411
FRI	6/21/2013	7,753.94	90,801	331	10	94	16	109	N	110	0	0	3,127
SAT	6/22/2013	7,754.41	91,235	323	10	94	15	109	N	110	0	0	2,842
SUN	6/23/2013	7,754.84	91,632	307	10	97	14	110	N	110	0	0	2,645
MON	6/24/2013	7,755.21	91,976	287	10	104	13	117	N	110	0	0	2,366
TUE	6/25/2013	7,755.58	92,320	287	10	104	13	116	N	110	0	0	2,150
WED	6/26/2013	7,756.02	92,731	319	10	102	12	114	N	110	0	0	1,841
THU	6/27/2013	7,756.38	93,068	278	10	99	11	110	N	110	0	0	1,794
FRI	6/28/2013	7,756.74	93,406	279	10	99	11	110	N	110	0	0	1,804
SAT	6/29/2013	7,757.13	93,772	293	10	98	10	108	N	110	0	0	1,700
SUN	6/30/2013	7,757.51	94,130	289	10	99	10	108	N	110	0	0	1,533
Averages		7,748.76	86,245	425	9	88	21	110		110	0		4,294
Totals (acft)				25,277	563	5,255	1,269	6,524		6,546	0	0	255,491

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/12. A total of 10,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish, WY 2013 (cont'd)

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2013
 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)
MON	7/1/2013	7,757.80	94,404	246	9	99	9	108	N	110	0	0	1,365
TUE	7/2/2013	7,757.97	94,566	190	9	100	9	109	N	110	0	0	1,177
WED	7/3/2013	7,758.10	94,689	175	9	104	8	112	N	110	0	0	1,040
THU	7/4/2013	7,758.23	94,812	175	9	104	8	112	N	110	0	0	961
FRI	7/5/2013	7,758.36	94,935	175	9	104	8	112	N	110	0	0	915
SAT	7/6/2013	7,758.48	95,049	171	9	104	8	112	N	110	0	0	857
SUN	7/7/2013	7,758.59	95,154	166	9	104	7	112	N	110	0	0	853
MON	7/8/2013	7,758.71	95,268	171	9	104	7	111	N	110	0	0	920
TUE	7/9/2013	7,758.80	95,353	155	9	103	7	110	N	110	0	0	818
WED	7/10/2013	7,758.88	95,430	163	9	115	7	122	N	110	10	20	730
THU	7/11/2013	7,758.88	95,430	167	9	158	7	165	N	110	50	119	585
FRI	7/12/2013	7,758.87	95,420	162	9	158	6	164	N	110	50	218	549
SAT	7/13/2013	7,758.90	95,449	181	9	158	6	163	N	110	50	317	549
SUN	7/14/2013	7,758.91	95,459	171	9	157	6	163	N	110	50	417	581
MON	7/15/2013	7,758.91	95,459	167	9	157	6	163	N	110	50	516	627
TUE	7/16/2013	7,758.91	95,459	167	9	158	5	163	N	110	50	615	537
WED	7/17/2013	7,758.87	95,420	148	9	158	5	163	N	110	50	714	578
THU	7/18/2013	7,758.85	95,401	157	9	157	5	162	N	110	50	813	675
FRI	7/19/2013	7,759.04	95,582	256	9	156	5	161	N	110	50	912	907
SAT	7/20/2013	7,759.09	95,630	187	9	154	5	160	N	110	50	1,012	883
SUN	7/21/2013	7,759.05	95,592	145	9	155	6	161	N	110	50	1,111	615
MON	7/22/2013	7,758.88	95,430	132	9	204	6	211	Y	138	100	1,309	411
TUE	7/23/2013	7,758.56	95,125	126	9	270	6	276	Y	132	100	1,507	290
WED	7/24/2013	7,758.21	94,793	112	9	270	6	276	Y	117	100	1,706	205
THU	7/25/2013	7,757.89	94,490	127	9	271	5	276	Y	132	100	1,904	162
FRI	7/26/2013	7,757.56	94,178	122	9	271	5	276	Y	127	100	2,103	309
SAT	7/27/2013	7,757.20	93,838	110	9	272	5	277	Y	114	100	2,301	614
SUN	7/28/2013	7,757.01	93,659	191	9	272	4	277	Y	195	100	2,499	696
MON	7/29/2013	7,756.86	93,518	199	9	262	4	266	Y	204	100	2,698	1,385
TUE	7/30/2013	7,756.66	93,330	153	9	239	5	244	Y	158	100	2,896	1,669
WED	7/31/2013	7,756.43	93,115	139	9	239	5	244	Y	144	100	3,094	1,382
Averages		7,758.30	94,885	165	9	172	6	178		122	50	929	769
Totals (acft)				10,127	557	10,586	379	10,965		7,482	3,094	57,126	47,296

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/12. A total of 10,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish, WY 2013 (cont'd)

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2013
 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)
THU	8/1/2013	7,756.19	92,890	132	6	239	5	244	Y	137	100	3,293	1,123
FRI	8/2/2013	7,755.95	92,666	132	6	239	5	244	Y	137	100	3,491	1,052
SAT	8/3/2013	7,755.68	92,414	119	6	239	5	244	Y	123	100	3,689	1,041
SUN	8/4/2013	7,755.42	92,171	123	6	239	5	244	Y	128	100	3,888	931
MON	8/5/2013	7,755.17	91,939	128	6	239	4	243	Y	132	100	4,086	836
TUE	8/6/2013	7,754.93	91,716	126	6	232	4	236	Y	131	84	4,252	836
WED	8/7/2013	7,754.73	91,531	125	6	212	4	216	Y	129	75	4,401	937
THU	8/8/2013	7,754.54	91,355	130	6	212	4	216	Y	134	75	4,549	873
FRI	8/9/2013	7,754.34	91,170	125	6	212	4	216	Y	129	75	4,698	838
SAT	8/10/2013	7,754.10	90,948	107	6	212	4	216	Y	111	75	4,847	745
SUN	8/11/2013	7,753.87	90,736	111	6	212	4	216	Y	115	75	4,996	721
MON	8/12/2013	7,753.61	90,497	97	6	212	4	216	Y	101	75	5,144	753
TUE	8/13/2013	7,753.36	90,267	103	6	212	4	216	Y	107	75	5,293	730
WED	8/14/2013	7,753.05	89,983	75	6	213	4	216	Y	79	75	5,442	697
THU	8/15/2013	7,752.77	89,727	90	6	213	4	216	Y	93	75	5,591	728
FRI	8/16/2013	7,752.48	89,461	85	6	213	4	216	Y	89	75	5,739	615
SAT	8/17/2013	7,752.19	89,197	85	6	213	3	216	Y	89	75	5,888	502
SUN	8/18/2013	7,751.90	88,933	86	6	213	3	216	Y	89	75	6,037	408
MON	8/19/2013	7,751.65	88,706	95	6	203	3	206	Y	98	84	6,203	371
TUE	8/20/2013	7,751.41	88,488	83	6	187	3	190	Y	86	100	6,401	380
WED	8/21/2013	7,751.17	88,271	86	6	189	3	192	Y	89	100	6,600	428
THU	8/22/2013	7,750.99	88,108	113	6	189	3	192	Y	116	100	6,798	469
FRI	8/23/2013	7,750.81	87,945	113	6	189	3	192	Y	116	100	6,996	679
SAT	8/24/2013	7,750.59	87,747	95	6	189	3	192	Y	98	100	7,195	690
SUN	8/25/2013	7,750.37	87,549	95	6	189	3	192	Y	98	100	7,393	685
MON	8/26/2013	7,750.15	87,351	95	6	189	3	192	Y	98	100	7,591	817
TUE	8/27/2013	7,749.94	87,162	99	6	188	3	191	Y	102	100	7,790	793
WED	8/28/2013	7,749.71	86,956	91	6	189	3	192	Y	94	75	7,938	771
THU	8/29/2013	7,749.48	86,750	91	6	189	3	192	Y	94	75	8,087	794
FRI	8/30/2013	7,749.31	86,598	118	6	189	3	192	Y	121	75	8,236	806
SAT	8/31/2013	7,749.24	86,535	163	6	189	3	192	Y	166	75	8,385	827
Averages		7,752.55	89,541	107	6	208	4	211		111	86		738
Totals (acft)				6,580	385	12,774	226	13,000		6,806	5,290	8,385	45,374

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/12. A total of 10,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish, WY 2013 (cont'd)

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2013
 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)
SUN	9/1/2013	7,749.15	86,455	152	4	189	3	192	Y	155	75	8,533	914
MON	9/2/2013	7,749.00	86,321	124	4	188	3	191	Y	127	75	8,682	1,048
TUE	9/3/2013	7,748.83	86,169	117	4	190	3	193	Y	120	50	8,781	946
WED	9/4/2013	7,748.59	85,955	112	4	216	3	219	Y	115	50	8,881	835
THU	9/5/2013	7,748.36	85,750	118	4	218	3	220	Y	121	50	8,980	727
FRI	9/6/2013	7,748.13	85,546	119	4	218	3	221	Y	122	50	9,079	653
SAT	9/7/2013	7,747.88	85,324	110	4	218	3	221	Y	112	50	9,178	733
SUN	9/8/2013	7,747.61	85,085	100	4	217	3	220	Y	103	50	9,277	801
MON	9/9/2013	7,747.36	84,864	109	4	216	3	219	Y	111	25	9,327	1,087
TUE	9/10/2013	7,747.14	84,670	122	4	216	3	219	Y	125	25	9,376	1,232
WED	9/11/2013	7,746.93	84,485	118	4	208	3	211	Y	121	25	9,426	1,345
THU	9/12/2013	7,746.87	84,432	129	4	152	3	155	Y	132	0	9,426	1,263
FRI	9/13/2013	7,747.02	84,564	186	4	115	3	118	Y	188	0	9,426	1,362
SAT	9/14/2013	7,747.12	84,652	163	4	115	3	117	N	110	0	9,426	1,865
SUN	9/15/2013	7,747.22	84,741	162	4	114	3	117	N	110	0	9,426	1,846
MON	9/16/2013	7,747.31	84,820	158	4	114	3	117	N	110	0	9,426	1,440
TUE	9/17/2013	7,747.35	84,855	136	4	114	4	118	N	110	0	9,426	1,160
WED	9/18/2013	7,747.41	84,908	145	4	115	3	118	N	110	0	9,426	1,120
THU	9/19/2013	7,747.57	85,050	189	4	115	3	118	N	110	0	9,426	1,051
FRI	9/20/2013	7,747.64	85,112	148	4	113	3	116	N	110	0	9,426	1,328
SAT	9/21/2013	7,747.66	85,130	126	4	113	3	116	N	110	0	9,426	1,355
SUN	9/22/2013	7,747.74	85,201	153	4	113	3	116	N	110	0	9,426	1,745
MON	9/23/2013	7,747.95	85,387	211	4	113	3	116	N	110	0	9,426	2,016
TUE	9/24/2013	7,748.13	85,546	197	4	113	3	116	N	110	0	9,426	1,948
WED	9/25/2013	7,748.29	85,688	198	4	123	3	126	N	110	15	9,456	1,788
THU	9/26/2013	7,748.40	85,786	195	4	142	3	145	N	110	30	9,515	1,581
FRI	9/27/2013	7,748.50	85,875	191	4	142	3	145	N	110	30	9,575	1,559
SAT	9/28/2013	7,748.58	85,946	182	4	142	3	145	N	110	30	9,634	1,531
SUN	9/29/2013	7,748.66	86,018	182	4	143	3	146	N	110	30	9,694	1,425
MON	9/30/2013	7,748.73	86,080	178	4	143	3	146	N	110	30	9,753	1,402
Averages		7,747.90	85,347	151	4	155	3	158			23		1,304
Totals (acft)				8,986	220	9,221	174	9,395			1,369	9,753	77,568

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/12. A total of 10,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

3. Ruedi Reservoir Releases for Endangered Fish, WY 2013 (cont'd)

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2013
 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)
TUE	10/1/2013	7,748.78	86,124	167	1	143	3	146	N	110	30	9,813	1,340
WED	10/2/2013	7,748.79	86,133	148	1	142	3	145	N	110	30	9,872	1,253
THU	10/3/2013	7,748.78	86,124	135	1	138	3	141	N	110	30	9,932	1,114
FRI	10/4/2013	7,748.76	86,106	130	1	138	3	141	N	110	30	9,991	1,208
SAT	10/5/2013	7,748.75	86,098	135	1	138	3	141	N	110	30	10,051	1,320
SUN	10/6/2013	7,748.74	86,089	135	1	138	3	141	N	110	30	10,110	1,351
MON	10/7/2013	7,748.74	86,089	139	1	138	3	141	N	110	30	10,170	1,354
TUE	10/8/2013	7,748.72	86,071	130	1	138	3	141	N	110	30	10,229	1,381
WED	10/9/2013	7,748.70	86,053	130	1	138	3	141	N	110	30	10,289	1,310
THU	10/10/2013	7,748.68	86,036	131	1	138	3	141	N	110	30	10,348	1,763
FRI	10/11/2013	7,748.69	86,044	130	1	125	3	127	N	110	30	10,408	1,591
SAT	10/12/2013	7,748.70	86,053	117	1	111	3	114	N	110	2	10,412	1,236
SUN	10/13/2013	7,748.73	86,080	126	1	111	3	114	N	110	0	10,412	1,120
MON	10/14/2013	7,748.80	86,142	144	1	112	3	114	N	110	0	10,412	1,666
TUE	10/15/2013	7,748.83	86,169	126	1	111	3	114	N	110	0	10,412	1,621
WED	10/16/2013	7,748.87	86,205	119	1	100	3	103	N	110	0	10,412	1,432
THU	10/17/2013	7,748.89	86,223	98	1	88	3	90	N	101	0	10,412	1,334
FRI	10/18/2013	7,748.93	86,258	112	1	93	3	96	N	110	0	10,412	1,229
SAT	10/19/2013	7,748.94	86,267	98	1	92	3	95	N	101	0	10,412	1,184
SUN	10/20/2013	7,748.96	86,285	103	1	92	3	95	N	105	0	10,412	1,139
MON	10/21/2013	7,748.97	86,294	99	1	93	3	95	N	101	0	10,412	1,143
TUE	10/22/2013	7,748.98	86,303	99	1	93	3	95	N	101	0	10,412	1,119
WED	10/23/2013	7,748.99	86,312	99	1	93	3	95	N	101	0	10,412	1,143
THU	10/24/2013	7,749.00	86,321	99	1	93	3	95	N	101	0	10,412	1,138
FRI	10/25/2013	7,749.00	86,321	94	1	92	3	95	N	97	0	10,412	1,207
SAT	10/26/2013	7,749.00	86,321	94	1	92	3	95	N	96	0	10,412	1,154
SUN	10/27/2013	7,749.00	86,321	94	1	92	3	95	N	96	0	10,412	1,201
MON	10/28/2013	7,749.06	86,374	87	1	59	3	62	N	90	0	10,412	1,272
TUE	10/29/2013	7,749.16	86,464	92	1	46	3	48	N	95	0	10,412	1,444
WED	10/30/2013	7,749.21	86,508	83	1	59	2	62	N	85	0	10,412	1,985
THU	10/31/2013	7,749.21	86,508	92	1	90	2	93	N	94	0	10,412	1,826
Averages		7,748.88	86,216	116	1	107	3	110			11		1,341
Totals (acft)				7,112	85	6,598	172	6,770			659	10,412	82,471

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 10/12. A total of 10,412 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.

4. Transmountain Diversions, WY 2013

Fryingpan-Arkansas Project

Transmountain Diversions

Unit: Acre-Feet

South Side Diversion	Apr	May	Jun	Jul	Aug	Sep	Total
South Fork	18.6	1244.2	3776.6	218.8	0.6	0.0	5258.8
No Name	0.0	444.9	906.1	0.0	0.0	0.0	1351
Hunter	0.0	886.2	2222.5	0.6	0.0	0.0	3109.3
Midway	0.0	650.8	2520.2	3.8	0.0	0.0	3174.8
Sawyer	18.6	1244.2	3776.6	218.8	0.6	0.0	5258.8
Chapman ¹	19.2	765.2	2521.4	270.7	16.5	11.7	3604.7
Subtotal	56.4	5235.5	15723.4	712.7	17.7	11.7	21757.4

North Side Diversion	Apr	May	Jun	Jul	Aug	Sep	Total
Carter	0	709.3	1819.5	270.4	0	0	2799.2
North Fork	3.8	58.1	654.6	88.9	0	0	805.4
Mormon	0	404	2083.7	177.1	0	0	2664.8
North Cunningham	0	197.4	919.7	77.6	0	0	1194.7
Middle Cunningham ²	0	184.1	1334.5	86.3	0	0	1604.9
Ivanhoe	490.7	1878	2756.3	60.9	0	0	5185.9
Granite	13.5	266.6	1172.6	318.4	79.1	0	1850.2
Fryingpan	21.8	2071	5857.3	233.9	21.8	0	8205.8
Lily Pad	0	1729.6	3039.3	50.6	9.7	0	4829.2
Subtotal	529.8	7498.1	19637.5	1364.1	110.6	0	29140.1
Total	586.2	12733.6	35360.9	2076.8	128.3	11.7	50897.5

Boustead Tunnel³	Oct-Apr	May	Jun	Jul	Aug	Sep	Total
	87.8	12767.0	31970.8	1742.3	58.1	105.9	46,731.9

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, rounding and lag/loss.

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

Fryingpan-Arkansas Project Imports

Charles H. Boustead Tunnel Outlet

Unit: 1,000 Acre-feet

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
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

Restriction: Not to exceed 120 KAF in one year

Not to exceed 2,352.8 KAF acre-feet in 34 consecutive years.

The imports between 1979 and 2013 are 1859.9KAF

1983 includes 3,120 acre-feet imported through the Twin Lakes Tunnel

6. Turquoise Lake WY 2013 Operations

Unit: 1,000 AF

Month	Busk-Ivanhoe Imports through Carlton	Busk-Ivanhoe Imports through Boustead	Homestake Imports	Project Imports	Native Inflow	Total Inflow	Evap	Total Outflow	End of Month Content	Water Surface Elevation (msl)
Oct 2012	0.1	0	0.1	0	0.8	1.0	0.3	9.8	57.71	9824.56
Nov 2012	0	0	0	0	0.4	0.4	0.1	2.3	55.63	9823.01
Dec 2012	0	0	0	0	1.0	1.0	0	11.4	45.17	9814.79
Jan 2013	0	0	0	0	0.5	0.5	0	3.1	42.54	9812.61
Feb 2013	0	0	0	0	0.7	0.7	0	8.9	34.37	9805.32
Mar 2013	0	0	0	0	0.5	0.5	0	1.0	33.82	9804.80
Apr 2013	0	0	0	0	1.2	1.2	0	8.2	26.84	9797.63
May 2013	0.7	0	1.3	12.8	5.9	20.7	0.1	1.7	45.66	9815.19
Jun 2013	2.4	0	13.7	31.9	7.7	55.7	0.8	1.8	98.78	9851.62
Jul 2013	0.6	0	2.2	1.7	2.0	6.5	0.5	1.8	103.00	9854.15
Aug 2013	0.1	0	0	0	1.0	1.1	0.4	1.6	102.09	9853.61
Sep 2013	0.1	0	1.8	0.1	1.5	2.7	0.2	1.4	103.13	9854.23
Total	4.0	0	19.1	46.5	23.2	92.0	2.4	53.0		

7. Twin Lakes/Mt. Elbert Forebay WY 2013 Operations

Unit: 1,000 Acre-Feet

Month	Twin Lakes Canal Company			Mt. Elbert Conduit		Twin Lakes					
	Imports	Winter	Pri/Native	Halfmoon	Project Water	Native Inflow ¹	Total Inflow	Evap ²	Total Outflow	End of Month Content ²	Water Elevation ³ (FEET)
Oct 2012	0.1	0	0	0	8.6	1.1	9.8	0.6	11.6	103.24	9180.36
Nov 2012	0.4	0.8	0	0	1.5	0.2	2.9	0.2	10.3	95.55	9176.34
Dec 2012	0.2	1.0	0	0	10.6	0	10.7	0	7.0	99.26	9178.70
Jan 2013	0.2	0.9	0	0	2.6	0	3.2	0	7.0	95.42	9176.73
Feb 2013	0.2	0.5	0	0	8.5	0	8.6	0	6.4	97.65	9177.84
Mar 2013	0.2	0	0	0	0.5	0.8	1.5	0	7.0	92.11	9175.13
Apr 2013	0.3	0	0	0	7.5	0.6	8.4	0.1	6.8	93.57	9175.81
May 2013	8.8	0	9.2	1.9	0.4	2.8	23.1	0.8	13.8	102.05	9180.22
Jun 2013	21.1	0	13.5	5.2	0.6	10.3	50.7	1.5	25.9	125.39	9191.07
Jul 2013	3.2	0	0.7	1.5	0.5	6.6	12.5	0.9	24.2	112.74	9185.40
Aug 2013	0.6	0	0.3	0.8	0.5	5.1	7.3	0.7	22.6	96.75	9177.57
Sep 2013	2.2	0	0.3	0.1	0.5	5.0	8.1	0.5	5.6	98.73	9178.26
TOTAL	37.5	3.2	24.0	9.5	42.3	32.5	146.8	5.3	148.2		

¹ Computed native inflow daily totals may not equal monthly totals because of differences in computation methods

² Both Twin Lakes and Mt. Elbert Forebay

³ Elevation of Twin Lakes

8. Mt. Elbert Pumped-Storage Powerplant WY 2013 Operations

Month	Net Generation (mWh)	Gross Generation (mWh)	Inflow to Mt. Elbert (1000 acre-ft)	Water Through Generator (1000 acre-ft)	Water Pumped from Twin Lakes to Forebay (1000 acre-ft)
Oct 2012	29.6	29.9	8.8	89.4	79.1
Nov 2012	16.3	16.6	1.8	50.4	48.4
Dec 2012	21.5	21.8	11.1	66.1	54.5
Jan 2013	31.0	31.3	2.6	91.7	89.1
Feb 2013	31.4	31.7	8.8	89.6	82.1
Mar 2013	31.3	31.6	0.5	91.0	90.1
Apr 2013	31.0	31.3	7.5	90.4	82.3
May 2013	29.2	29.4	2.4	86.0	83.4
Jun 2013	28.0	28.2	5.7	84.8	79.6
Jul 2013	33.9	34.1	2.0	100.1	98.2
Aug 2013	33.3	33.6	1.3	96.1	94.6
Sep 2013	22.5	22.7	0.6	62.4	62.6
TOTAL	339.0	342.2	53.1	998.0	944.0

9. Pueblo Reservoir WY 2013 Operations

Units: 1,000 Acre-Feet

Month	Project Inflow	Other Inflow	Native Inflow	Total Inflow	Evap	Project Outflow	Winter Water Outflow	Total Outflow	End of Month Content	Water Surface Elevation (msl)
Oct 2012	0.3	1.1	9.2	10.6	1.3	1.6	0.2	12.5	160.0	4855.78
Nov 2012	0.8	2.2	7.7	10.7	0.8	1.0	0.1	8.5	161.4	4856.20
Dec 2012	1.3	0.0	11.6	12.9	0.4	16.4	0.1	6.7	167.1	4857.88
Jan 2013	1.3	2.4	10.3	14.0	0.3	7.5	0.1	8.6	172.2	4859.35
Feb 2013	1.2	1.7	9.0	11.9	0.6	16.1	0.0	7.9	175.5	4860.31
Mar 2013	0.8	2.1	10.0	12.9	1.0	18.9	0.1	12.0	175.5	4860.29
Apr 2013	0.3	0.8	7.8	8.9	1.6	13.0	13.2	13.6	169.2	4858.50
May 2013	0.3	4.2	26.2	30.7	2.2	6.7	8.1	47.8	150.0	4852.72
Jun 2013	0.3	5.9	61.1	67.3	2.7	7.2	11.1	85.3	129.3	4845.98
Jul 2013	4.4	6.2	35.4	35.4	2.2	7.8	8.7	39.3	123.2	4843.88
Aug 2013	8.6	4.2	31.5	31.5	1.7	16.2	4.9	24.7	128.3	4845.65
Sep 2013	0.3	7.6	42.1	42.1	1.5	16.2	0.6	39.4	129.5	4846.05
Total	19.9	38.4	261.9	288.9	16.3	128.6	47.2	306.3		

10. Reservoir Storage Allocation Data

Fryingpan-Arkansas Project
 Reservoir Storage Allocation Data
 Unit: Acre-Feet

Reservoir	Dead	Inactive	Active Conservation	Joint Use	Flood Control	Total Capacity Storage
Ruedi	63	1,095	101,278	0	0	102,373 ¹
Turquoise	2,810	8,920	120,478	0	0	129,398 ¹
Pueblo	2,329	28,121	228,828	66,000	26,991	349,940 ²
Twin Lakes	55,000	73,000	68,000	0	0	141,000
Mt. Elbert Forebay	561	3,825	7,318	0	0	11,143 ¹

¹ Area Capacity Table from 1984

² Area Capacity Table from 1994

Note: Inactive includes dead storage

11. Monthly Evaporation Factors

Fryingpan-Arkansas Project
 Monthly Evaporation Factors

Month	Ruedi	Turquoise	Twin Lakes	Pueblo
Oct 2012	0.0530	0.1217	0.1217	0.1366
Nov 2012	0	0.0566	0.0566	0.0886
Dec 2012	0	0.0171	0.0171	0.0735
Jan 2013	0	0.0274	0.0274	0.0708
Feb 2013	0	0.0497	0.0497	0.1059
Mar 2013	0	0.1331	0.1331	0.1548
Apr 2013	0	0.2006	0.2006	0.1760
May 2013	0.1470	0.2554	0.2554	---
Jun 2013	0.3605	0.2246	0.2246	---
Jul 2013	0.3244	0.1766	0.1766	---
Aug 2013	0.2332	0.1663	0.1663	---
Sep 2013	0.1419	0.1217	0.1217	---

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

The factor is derived from $((\text{the average monthly evaporation volume} * 12) / 0.7) / (\text{no. days in the month})$

Evaporation in acre-feet = monthly factor * surface area of the lake * (1 - percentage of ice cover)

12. Monthly Evaporation
 Fryingpan-Arkansas Project
 Monthly Average vs. Current Water Year Evaporation
 Unit=Acre-Feet

Month	Ruedi		Turquoise		Twin Lakes ¹		Pueblo	
	Avg Evap	WY2013 Evap	Avg Evap	WY2013 Evap	Avg Evap	WY2013 Evap	Avg Evap	WY2013 Evap
Oct 2012	44.93	71.33	355.69	324.94	515.52	536.97	1036.20	1328.31
Nov 2012	0	0	159.94	132.68	227.51	184.42	524.91	755.48
Dec 2012	0	0	13.55	13.80	24.10	23.56	431.47	435.97
Jan 2013	0	0	0.37	3.80	1.00	2.02	394.11	367.76
Feb 2013	0	0	0	0	2.03	6.23	576.32	551.73
Mar 2013	0	0	0.03	0	24.06	14.61	1210.12	966.46
Apr 2013	8.40	0	13.60	0	179.46	89.45	1656.09	1603.59
May 2013	143.86	196.03	293.57	110.47	871.76	725.89	2134.91	2152.98
Jun 2013	418.53	562.72	726.88	791.96	1209.62	1364.91	2528.96	2660.22
Jul 2013	484.64	556.78	616.94	516.33	1007.84	845.52	2396.87	2241.96
Aug 2013	271.14	385.18	474.96	386.61	774.32	590.61	1917.25	1709.04
Sep 2013	154.85	220.20	427.15	217.66	714.29	449.66	1535.42	1469.47

Yearly averages include year's 1996-2013.

¹ Twin Lakes averages do not include Mt . Elbert Forebay

13. Monthly Precipitation
 Fryingpan-Arkansas Project
 Monthly Average vs. Current Water Year Precipitation
 Unit=Inches

Month	Ruedi		Turquoise		Twin Lakes		Pueblo	
	Avg Precip	WY2013 Precip	Avg Precip	WY2013 Precip	Avg Precip	WY2013 Precip	Avg Precip	WY2013 Precip
Oct 2012	1.47	1.96	1.18	0.58	0.92	1.43	0.88	0.18
Nov 2012	0.99	0.30	1.16	0.20	0.43	0.04	0.35	0.03
Dec 2012	0.96	1.30	1.30	1.38	0.41	0.18	0.33	0.18
Jan 2013	1.55	1.4 ¹	1.58	0.88	0.45	0.26	0.31	0.21
Feb 2013	1.18	0.2 ¹	1.30	0.77	0.48	0.42	0.34	0.31
Mar 2013	1.10	1.0 ¹	1.33	1.57	0.60	0.72	0.82	0.24
Apr 2013	1.80	1.7 ¹	1.72	2.40	0.78	0.94	1.72	0.45
May 2013	1.22	2.4 ¹	1.42	4.37	0.87	1.65	1.17	0.89
Jun 2013	0.93	0 ¹	0.92	0.17	0.82	0.29	0.84	0.13
Jul 2013	1.50	0.9 ¹	2.05	2.77	1.88	2.29	1.76	1.16
Aug 2013	1.84	0.6 ¹	2.16	1.74	1.61	1.80	2.36	3.19
Sep 2013	1.64	0.5 ¹	1.49	3.44	1.12	2.33	0.69	1.88
TOTAL	16.27	12.26	17.66	20.27	10.37	12.35	11.62	8.85
Max. Annual	26.70	(1984)	25.95	(1957)	17.27	(1952)	20.32	(2007)

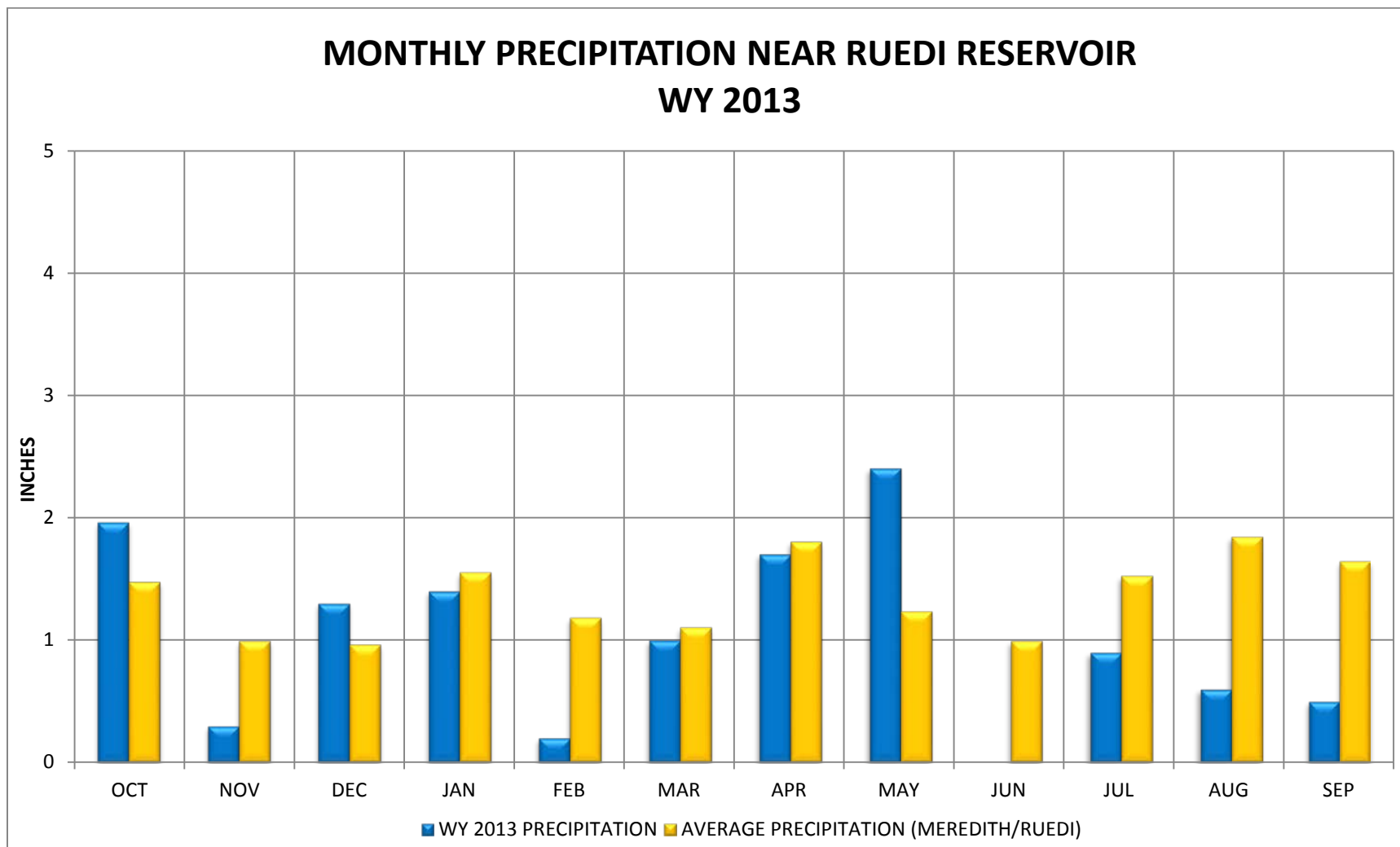
¹The gage at Ruedi Reservoir was miscoded to read 1/10th of the true precipitation amount. The chart readings are extrapolations of the recorded data.

14. Flood Control Benefits
 Fryingpan-Arkansas Project
 Flood Control Benefits in Dollars

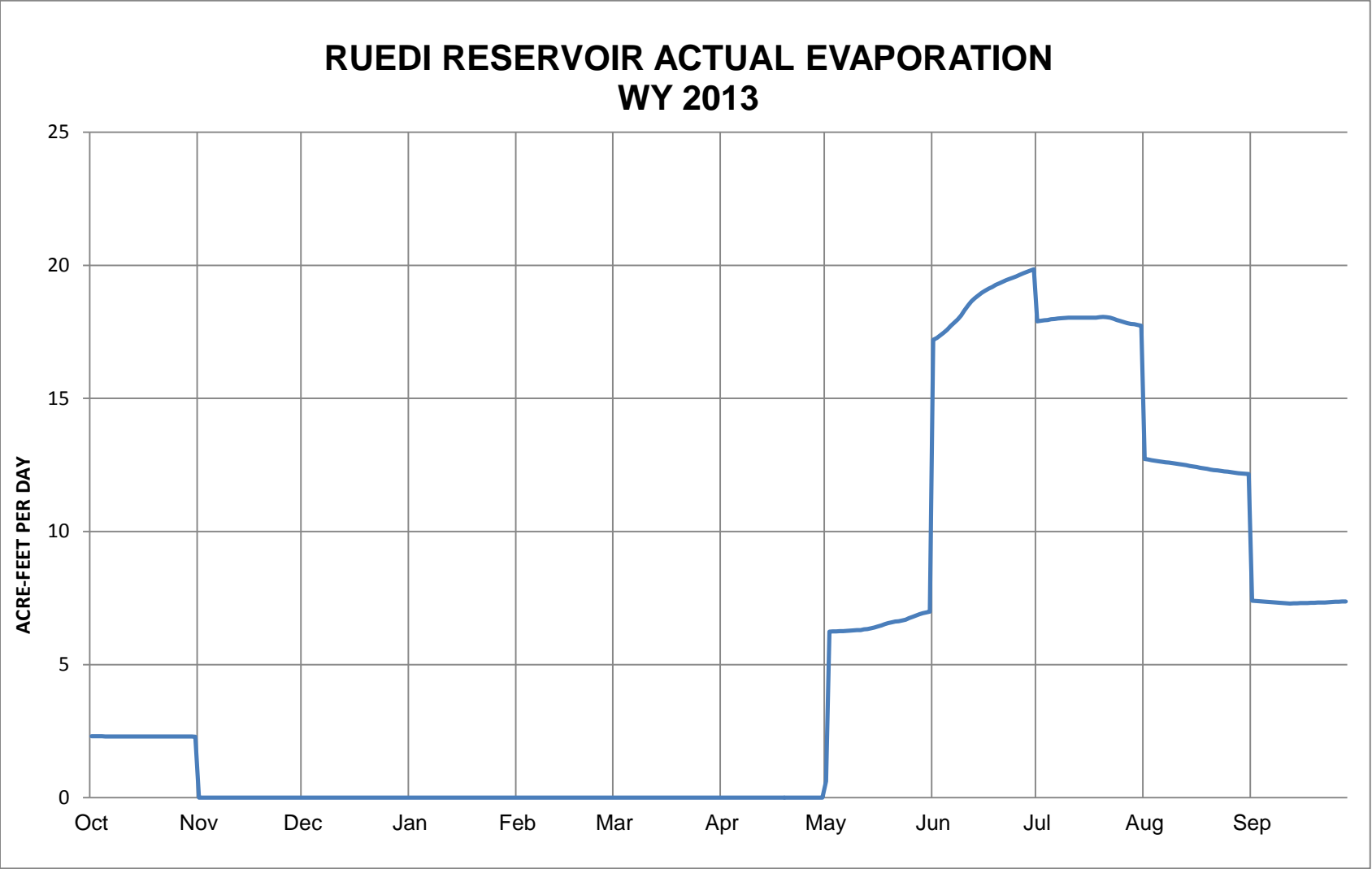
WY	Ruedi Benefits	Ruedi Benefits Cumulative	Pueblo Benefits	Pueblo Benefits Cumulative
1976			320,000	320,000
1979			90,000	410,000
1980			86,000	496,000
1981			111,000	607,000
1982			836,000	1,443,000
1983	80,000	80,000	47,000	1,490,000
1984	330,000	410,000	1,039,000	2,529,000
1985	91,000	501,000	234,000	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
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

APPENDIX B – EXHIBITS

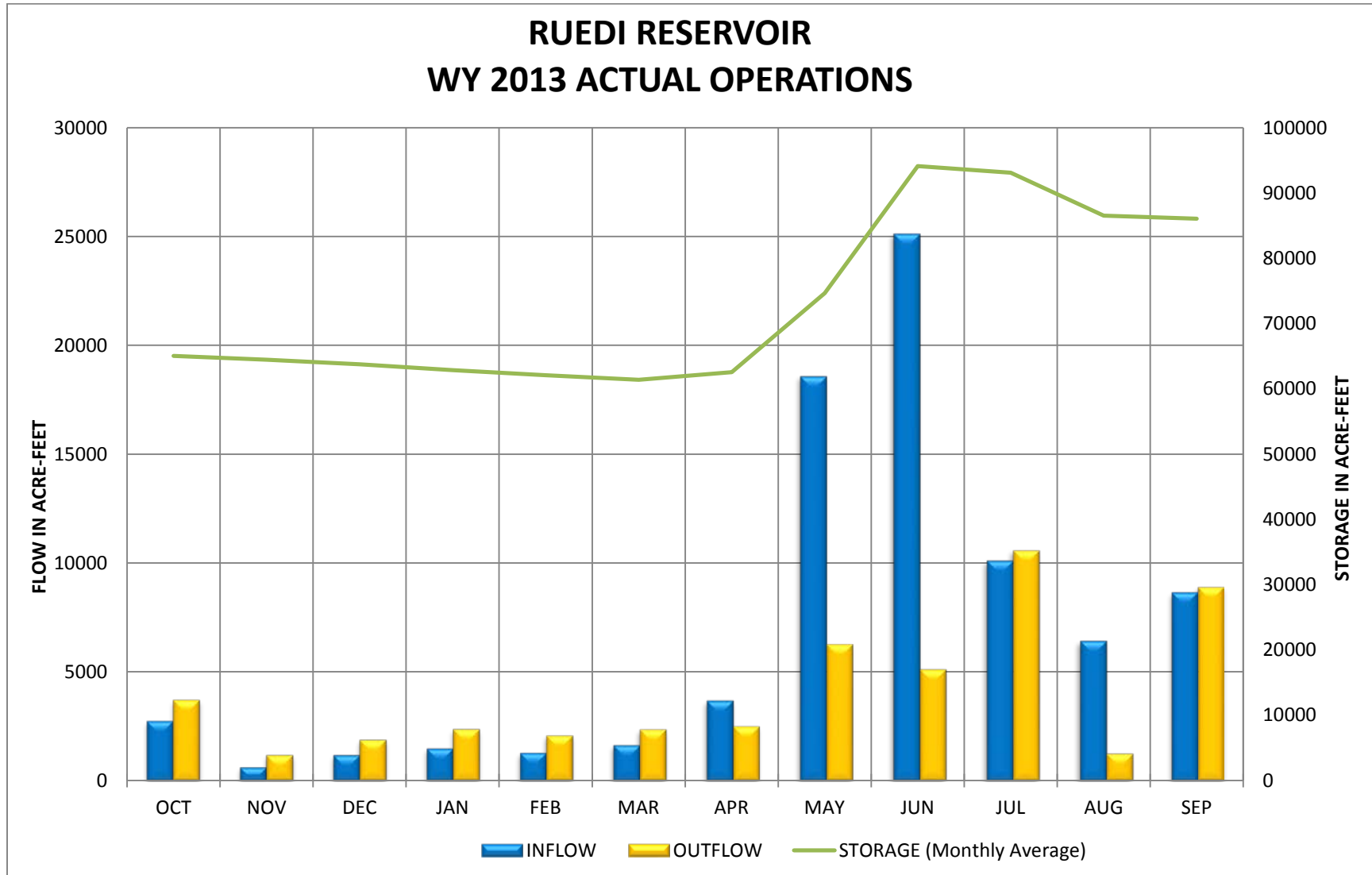
1. Ruedi Reservoir Monthly Precipitation



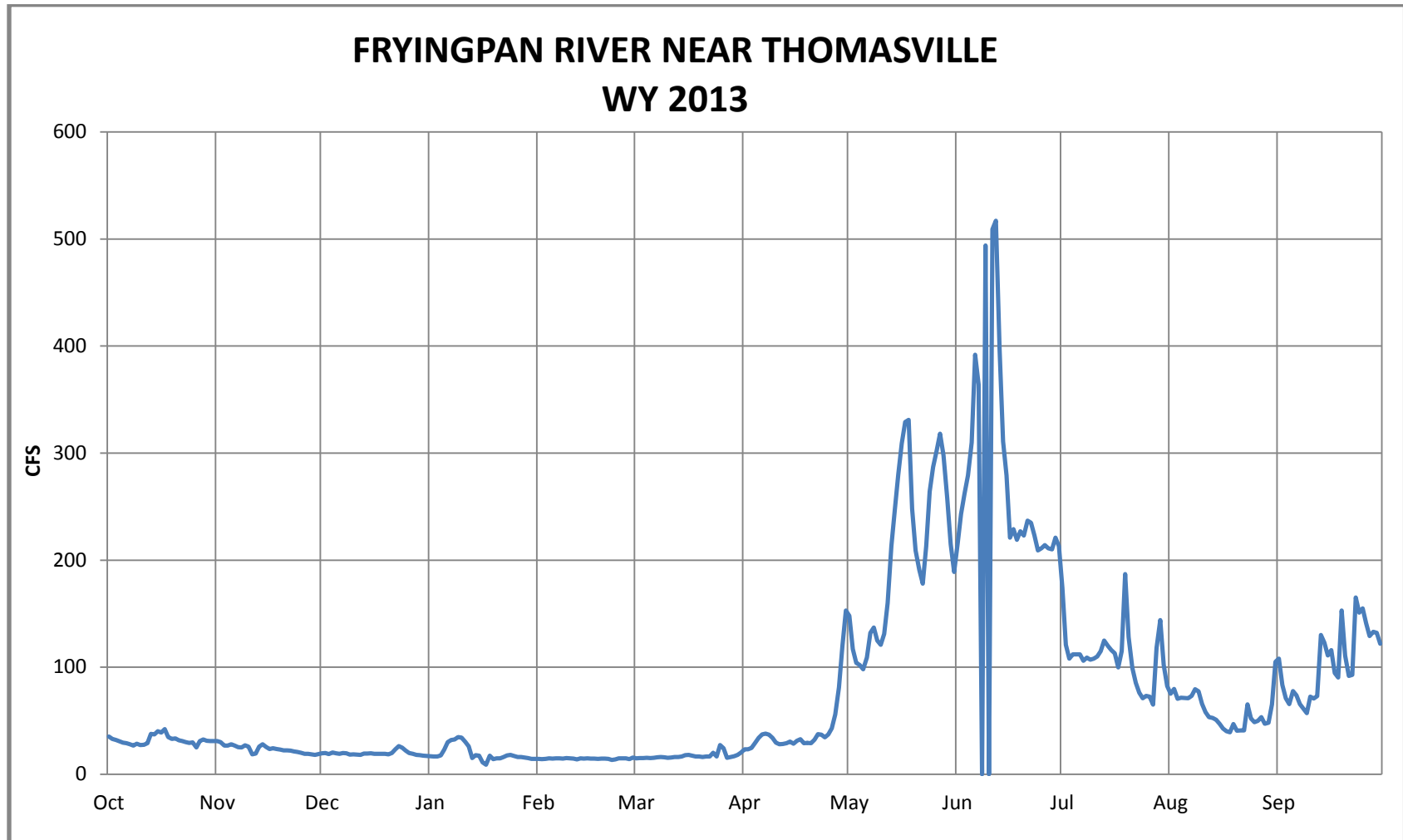
2. Ruedi Reservoir Evaporation



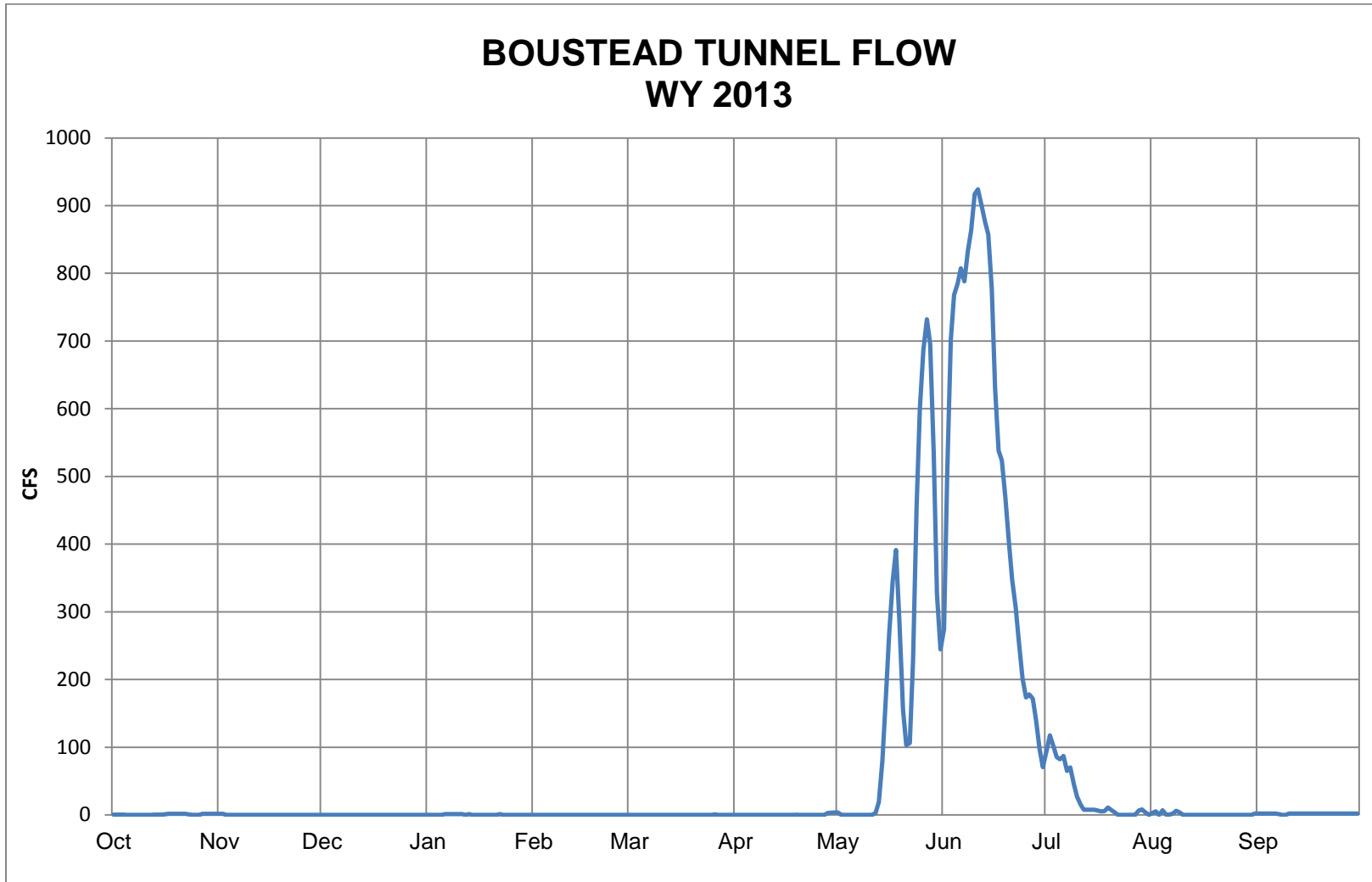
3. Ruedi Reservoir Actual Operations



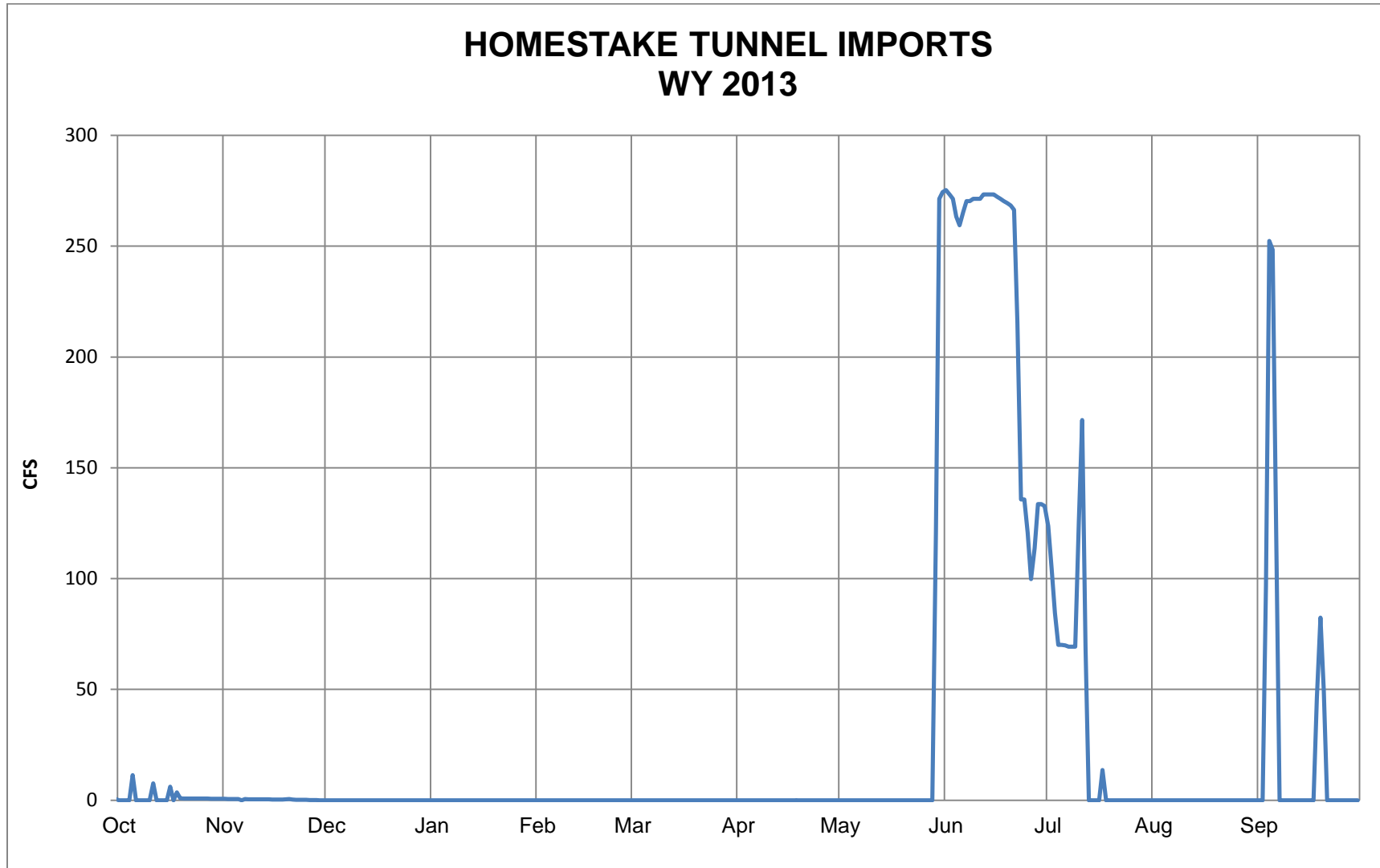
4. Fryingpan River near Thomasville Daily Discharge



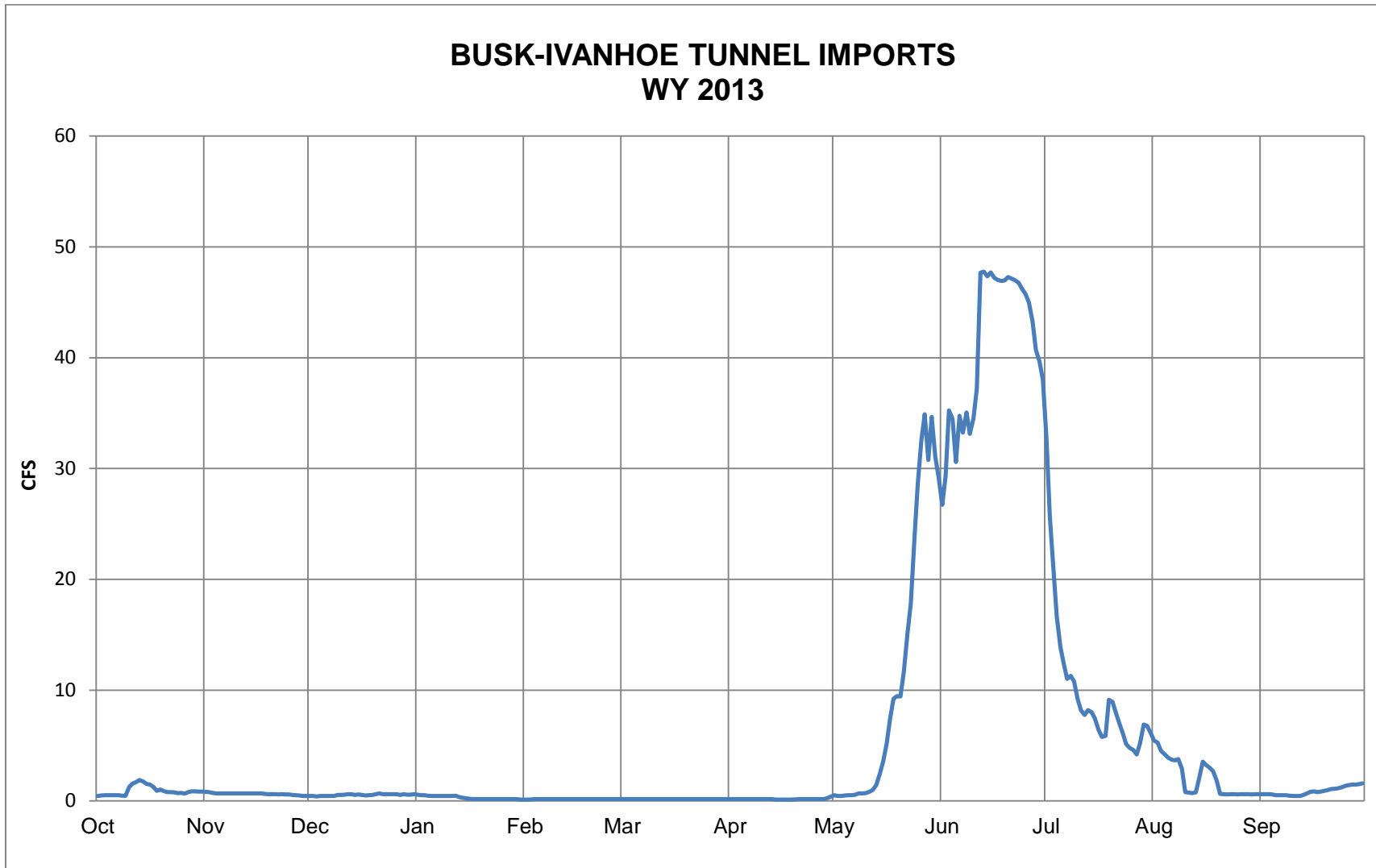
5. Boustead Tunnel Actual Operations



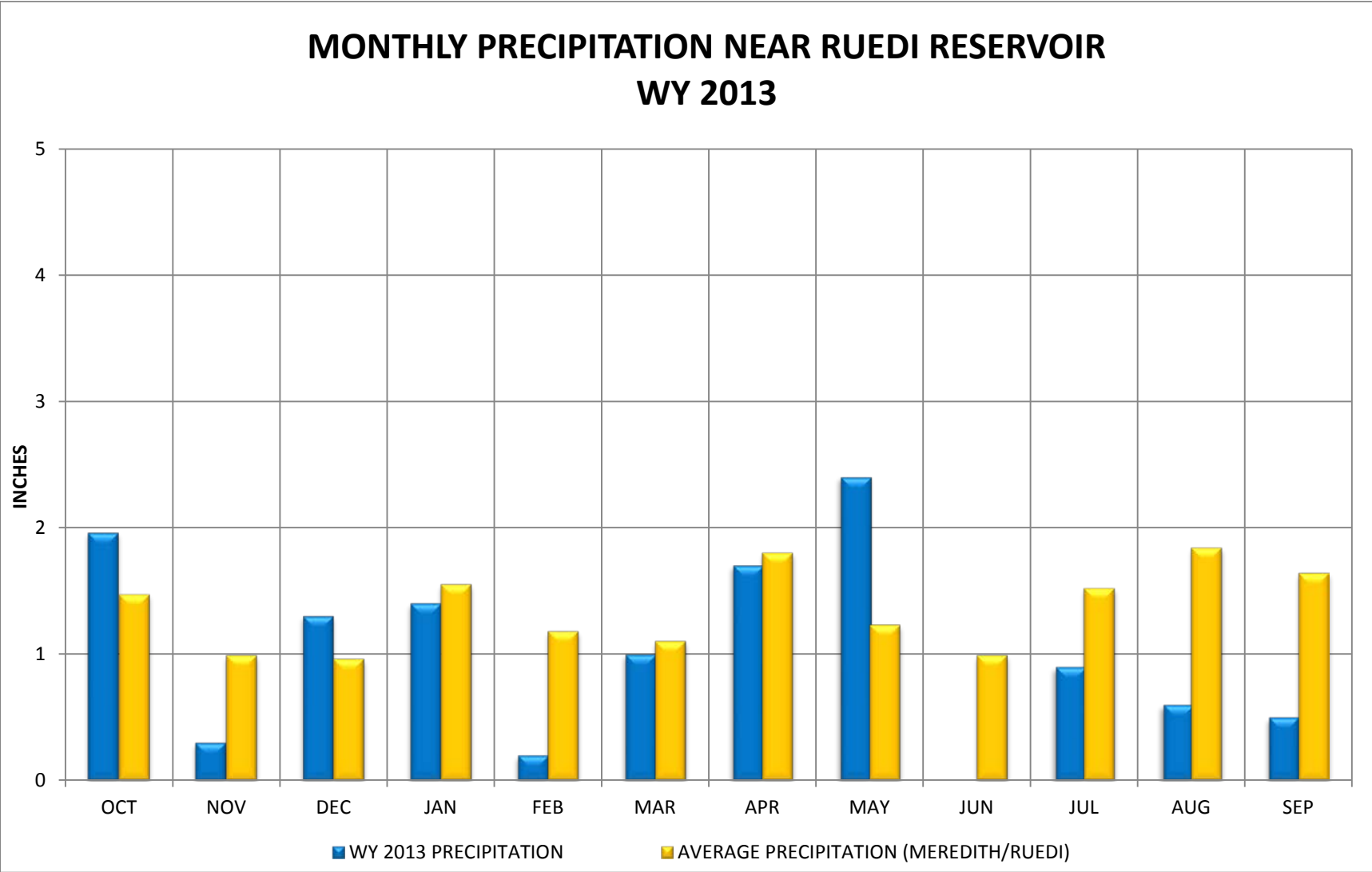
6. Homestake Tunnel Actual Operations



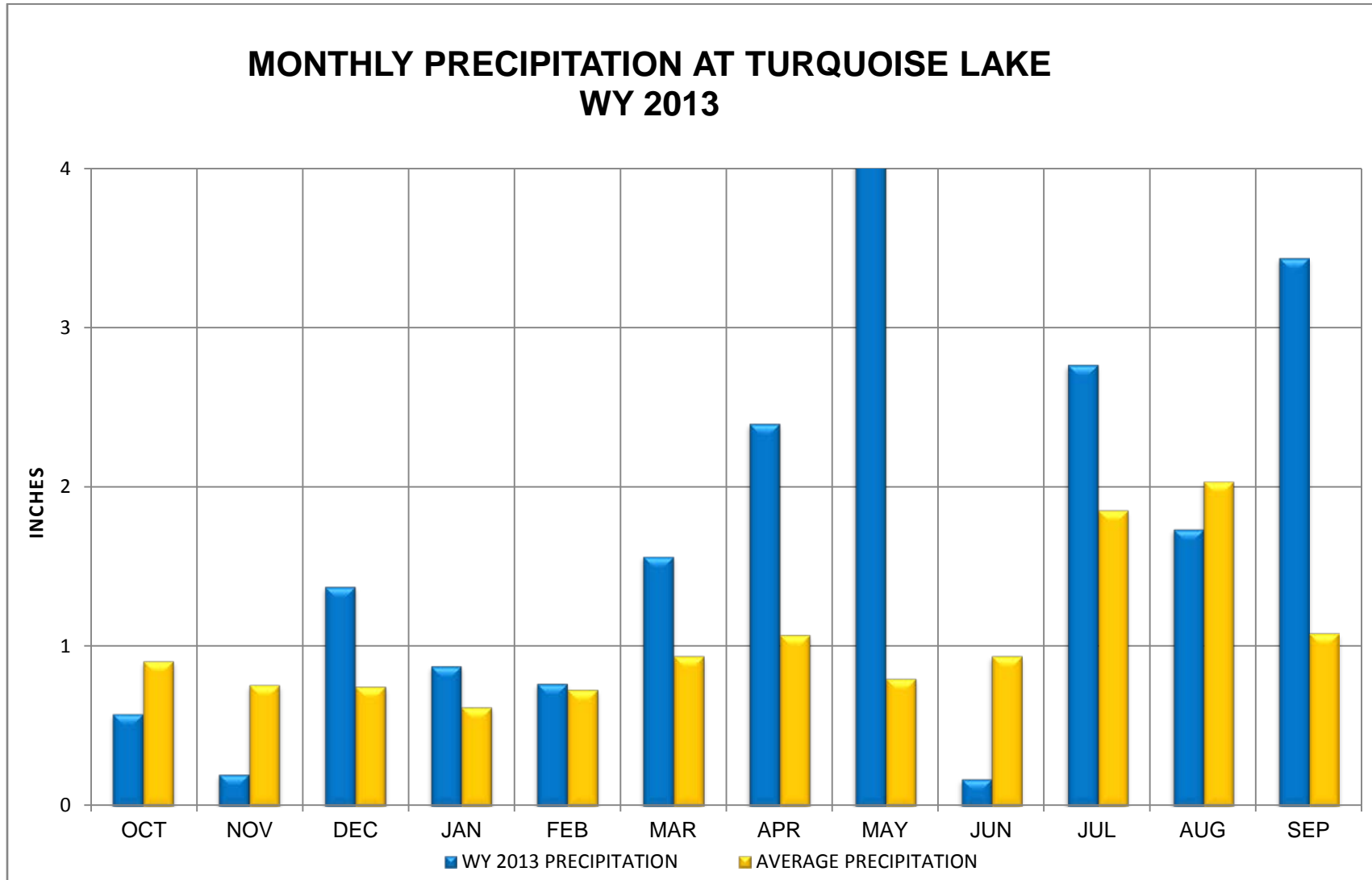
7. Busk-Ivanhoe Tunnel Actual Operations



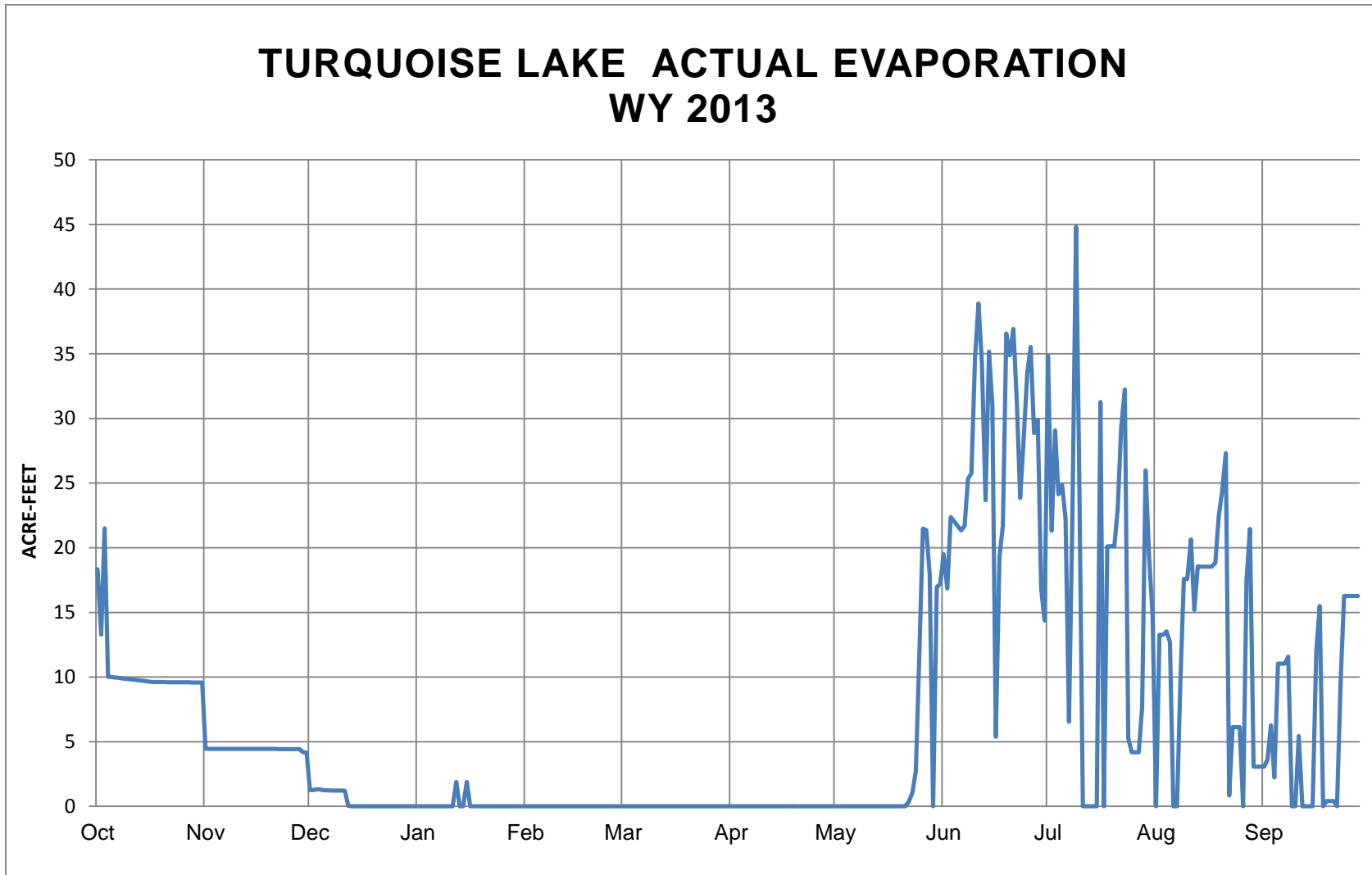
8. Ruedi Reservoir Monthly Precipitation



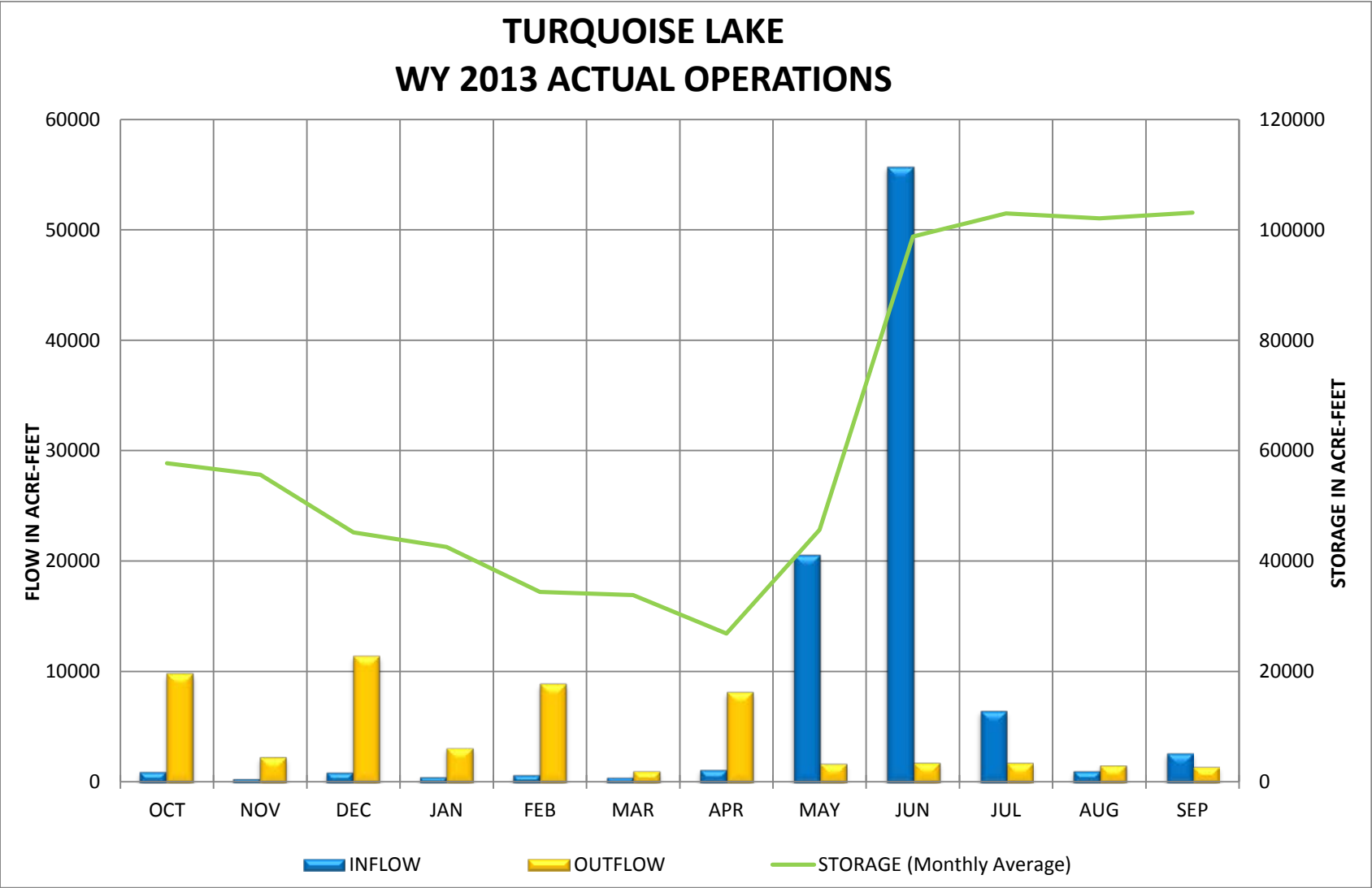
9. Turquoise Lake (Sugar Loaf Dam) Monthly Precipitation



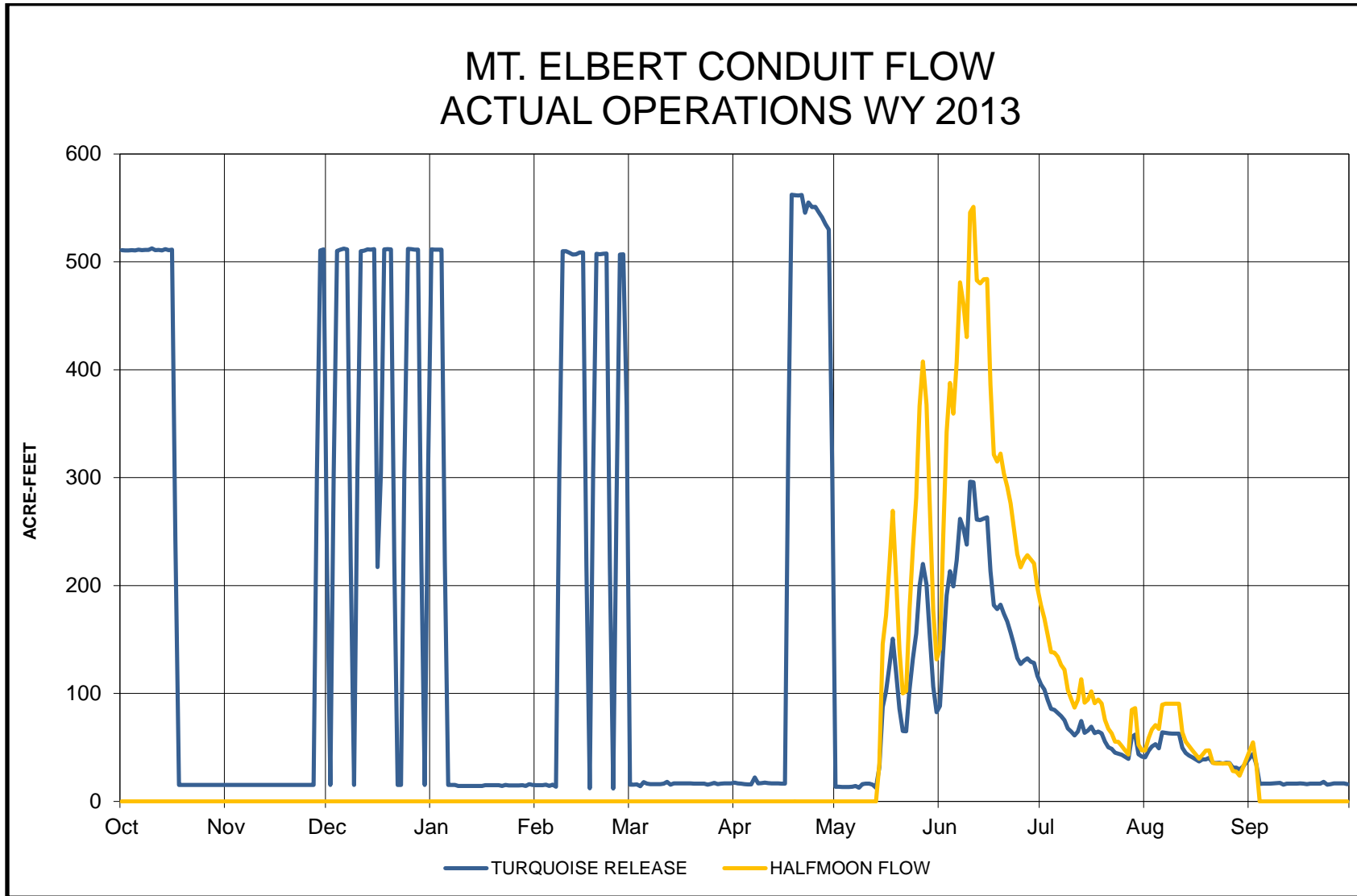
10. Turquoise Lake (Sugar Loaf Dam) Evaporation



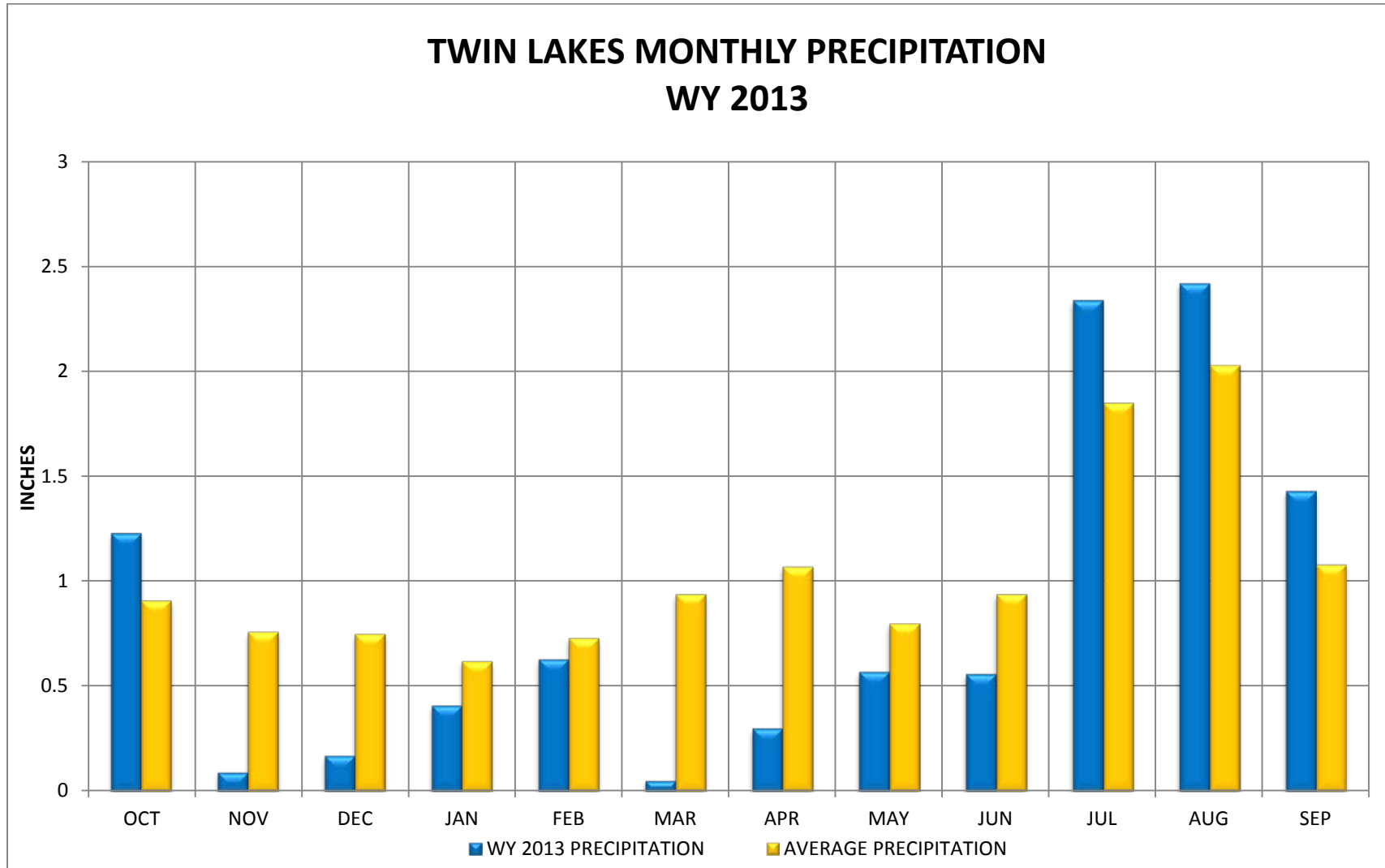
11. Turquoise Lake (Sugar Loaf Dam) Actual Operations



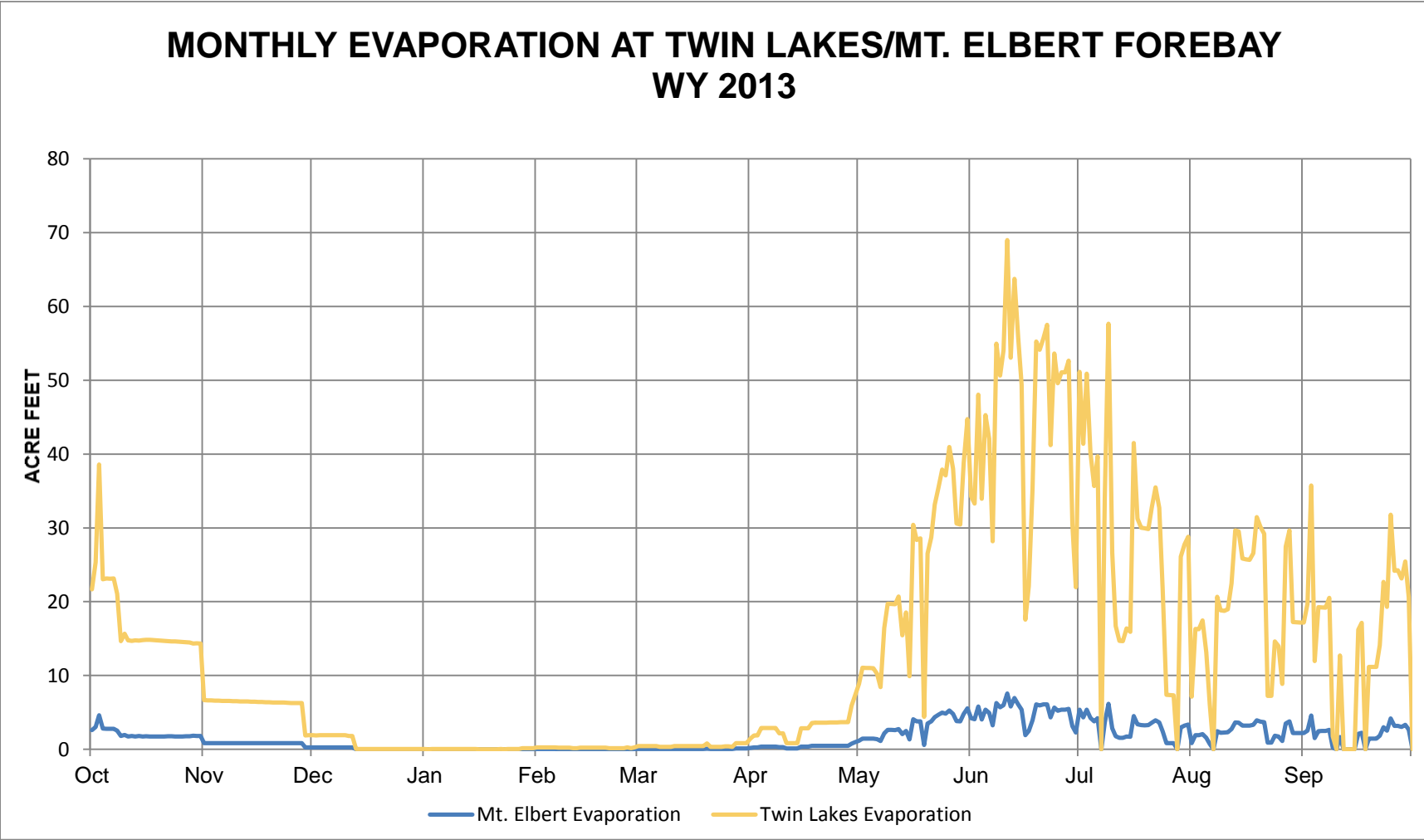
12. Mt. Elbert Conduit Flow Actual Operations



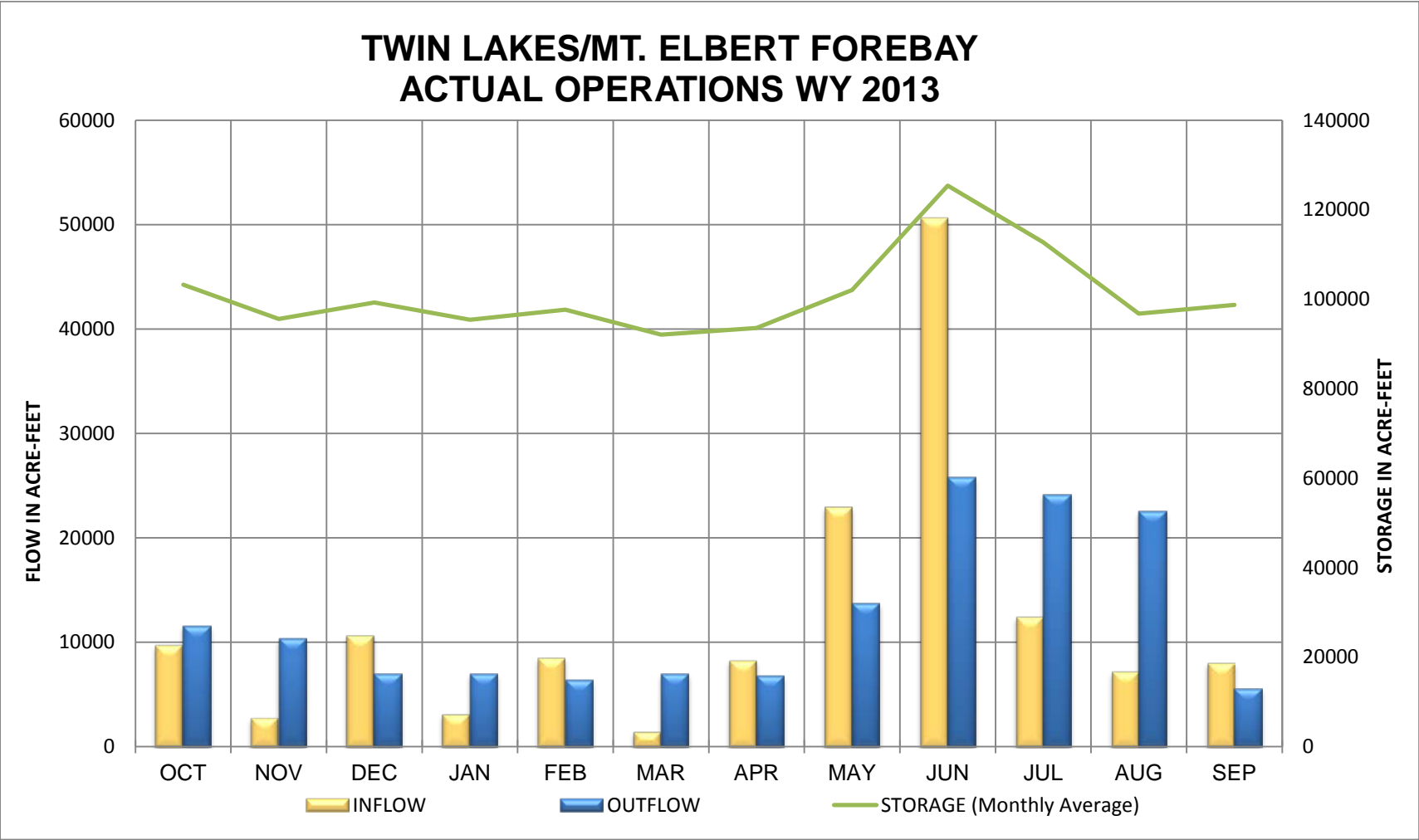
13. Twin Lakes Monthly Precipitation



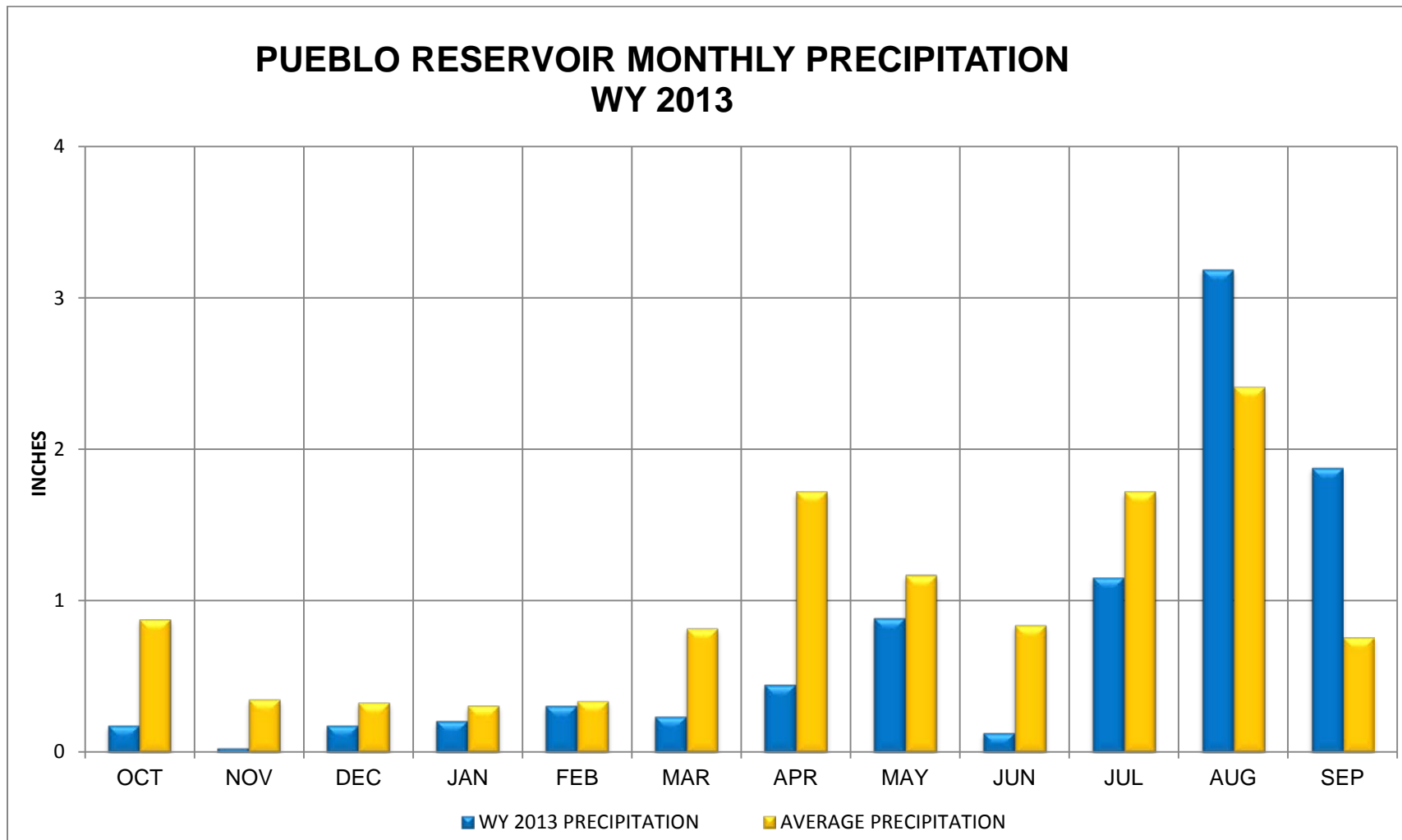
14. Twin Lakes Dam and Mt. Elbert Forebay Monthly Evaporation



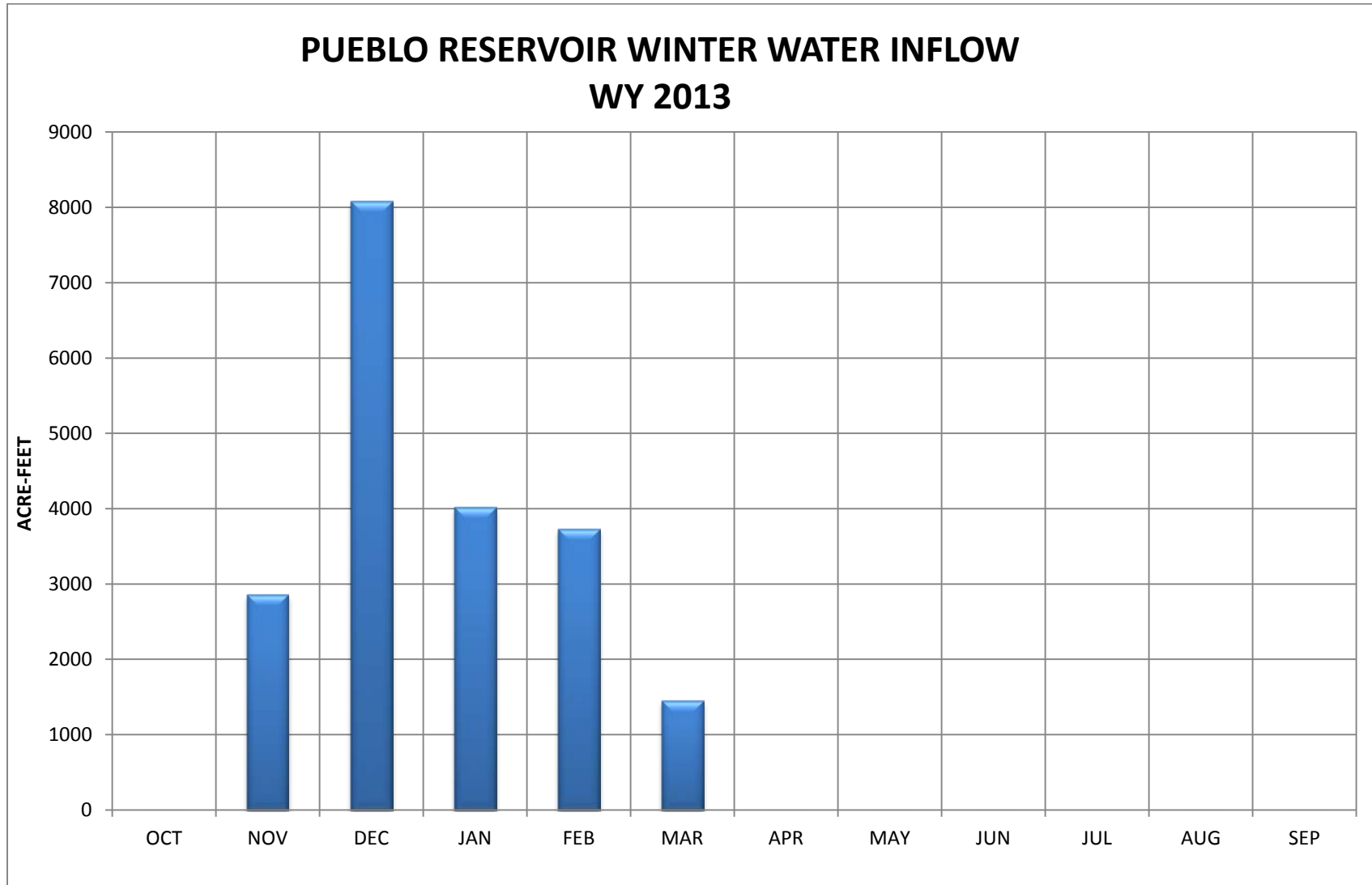
15. Twin Lakes/Mt. Elbert Forebay Actual Operations



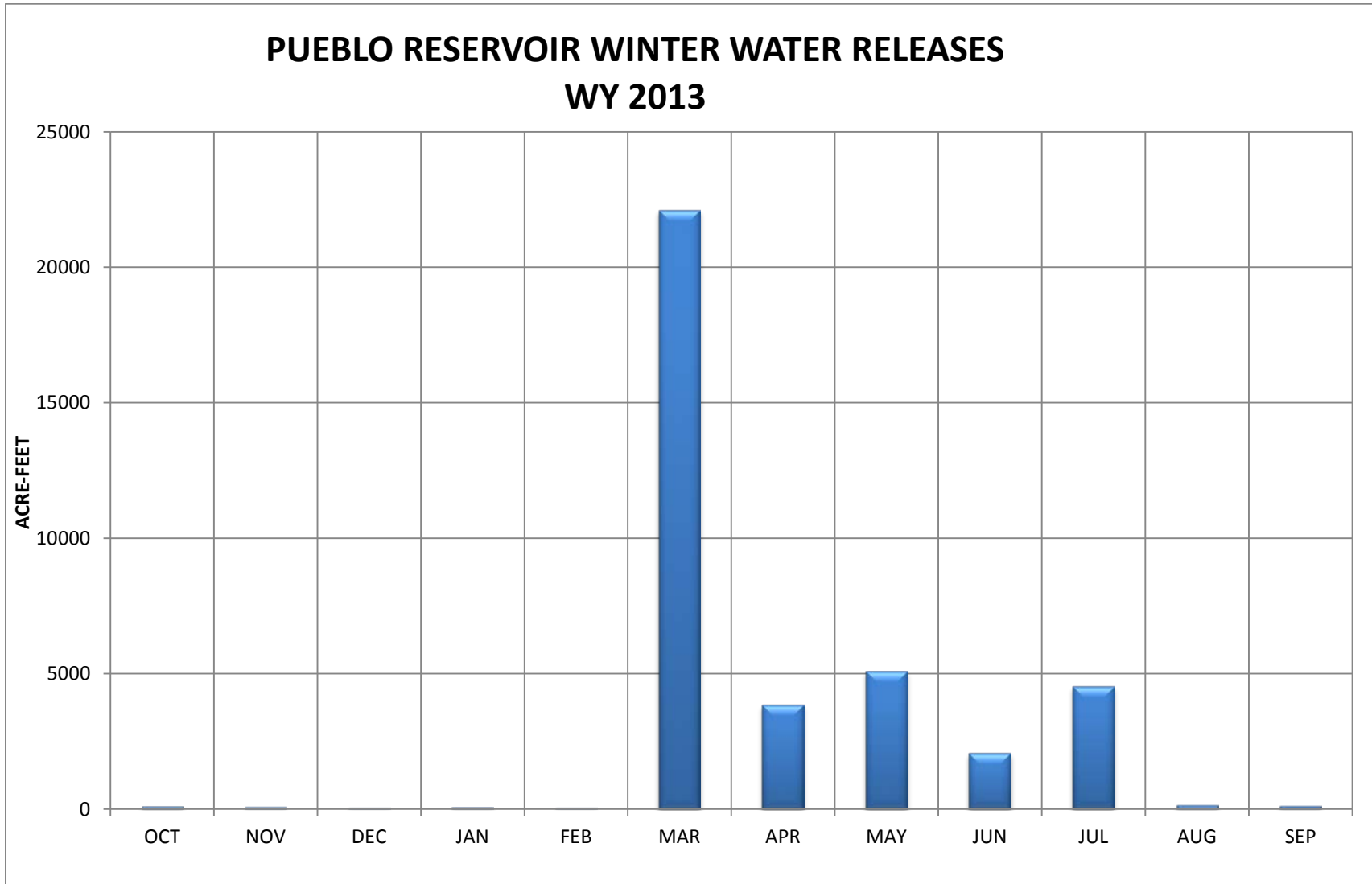
16. Pueblo Reservoir Monthly Precipitation



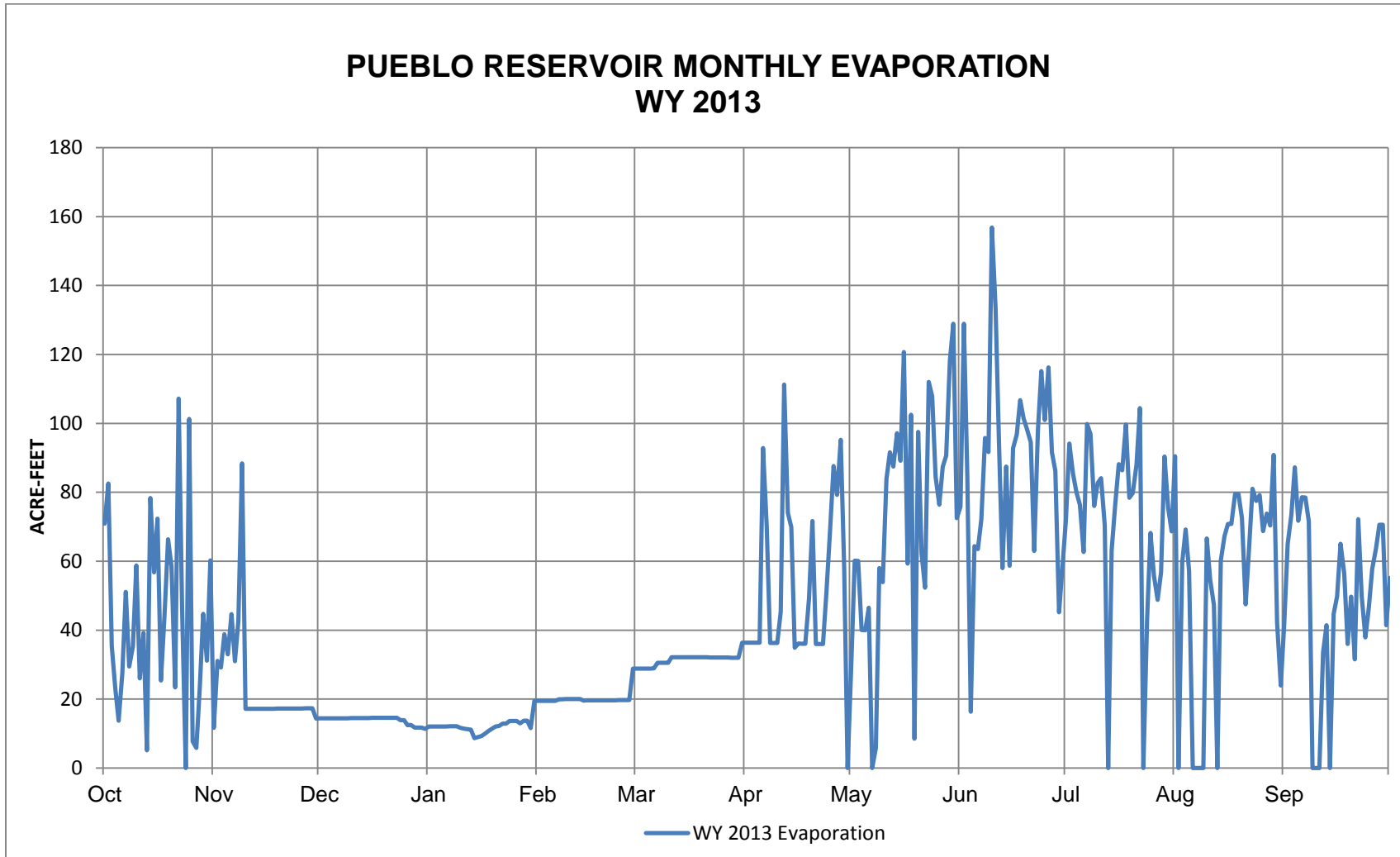
17. Pueblo Reservoir Winter Water Inflow



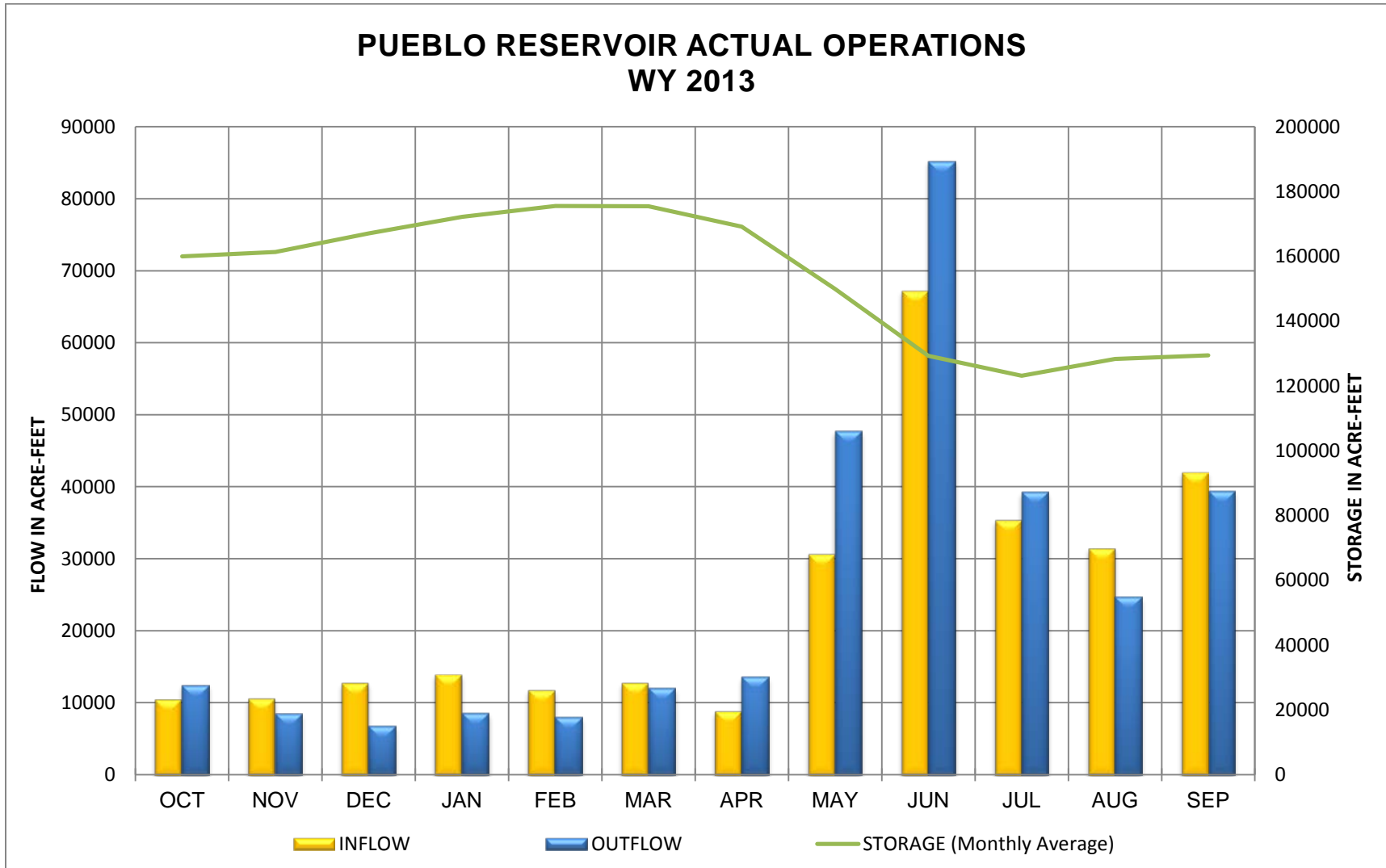
18. Pueblo Reservoir Winter Water Releases



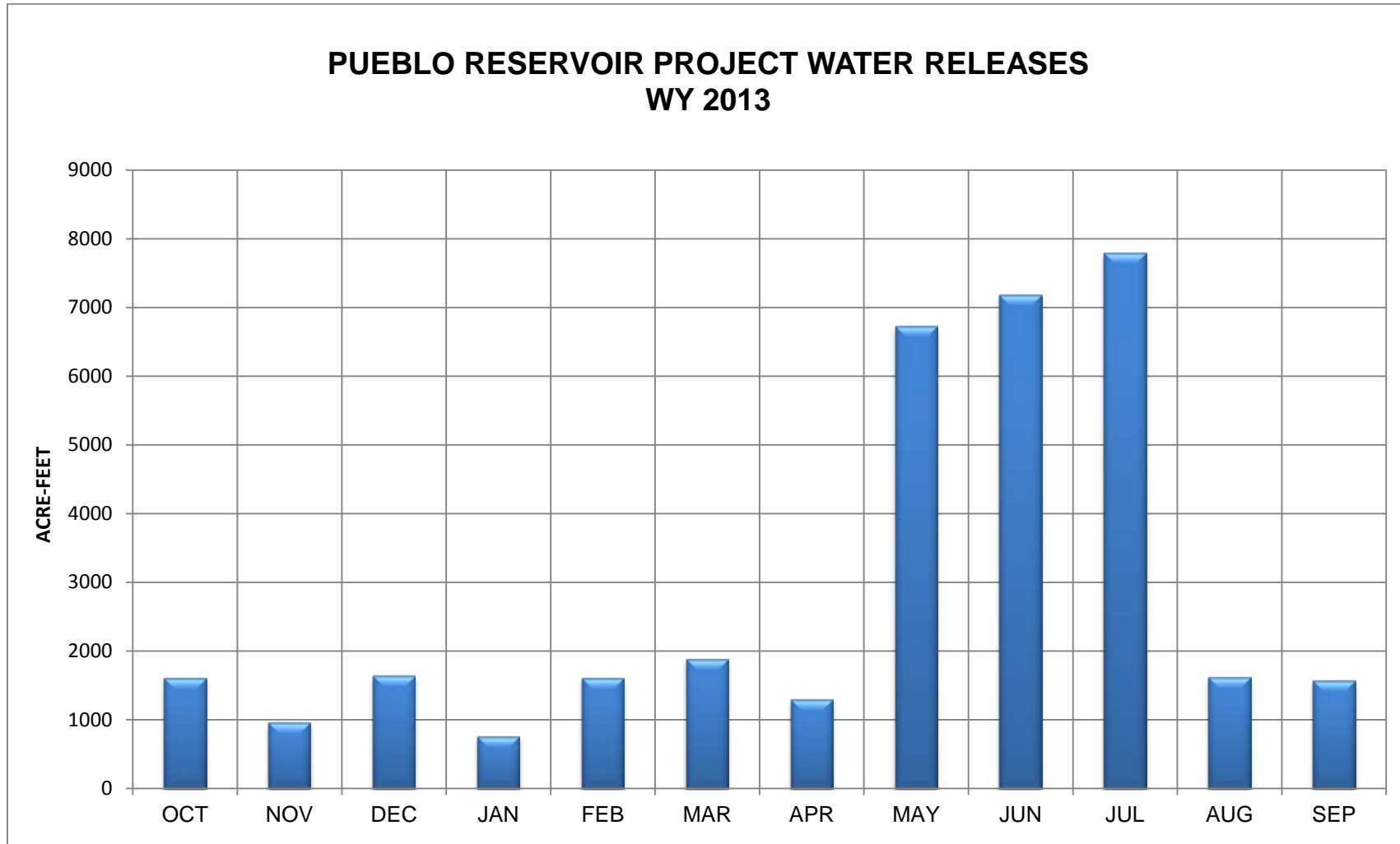
19. Pueblo Reservoir Monthly Evaporation



20. Pueblo Reservoir Actual Operations



21. Releases of Fryngpan-Arkansas Project Water from Pueblo Reservoir



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

Twin Lakes Canal Company Exchange with Fryingpan-Arkansas Project Water
WY 2013
Units = Acre-Feet

	Lincoln Creek below Grizzly Reservoir (1)	Roaring Fork River above Lost Man (2)	Total Exchanged (3)	Twin Lakes Storage (3) X 0.9913 ¹
Oct 2012	49.4	0	49.4	48.96
Nov 2012	160.18	0	160.18	158.72
Dec 2012	169.42		169.42	167.9
Jan 2013	170.61	0	170.61	169.06
Feb 2013	149.68	0	149.68	148.3
Mar 2013	166.16	0	166.16	164.61
Apr 2013	165.42	0	165.42	163.93
May 2013	161.29	0	161.29	159.94
Jun 2013	213.05	218.02	431.07	427.27
Jul 2013	198.42	195.78	394.2	393.52
Aug 2013	50.77	40.25	91.02	90.24
Sep 2013	599.49	119.58	719.07	712.14
Total	2,253.89	573.63	2,827.52	2,804.59²

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

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

Operating Criteria

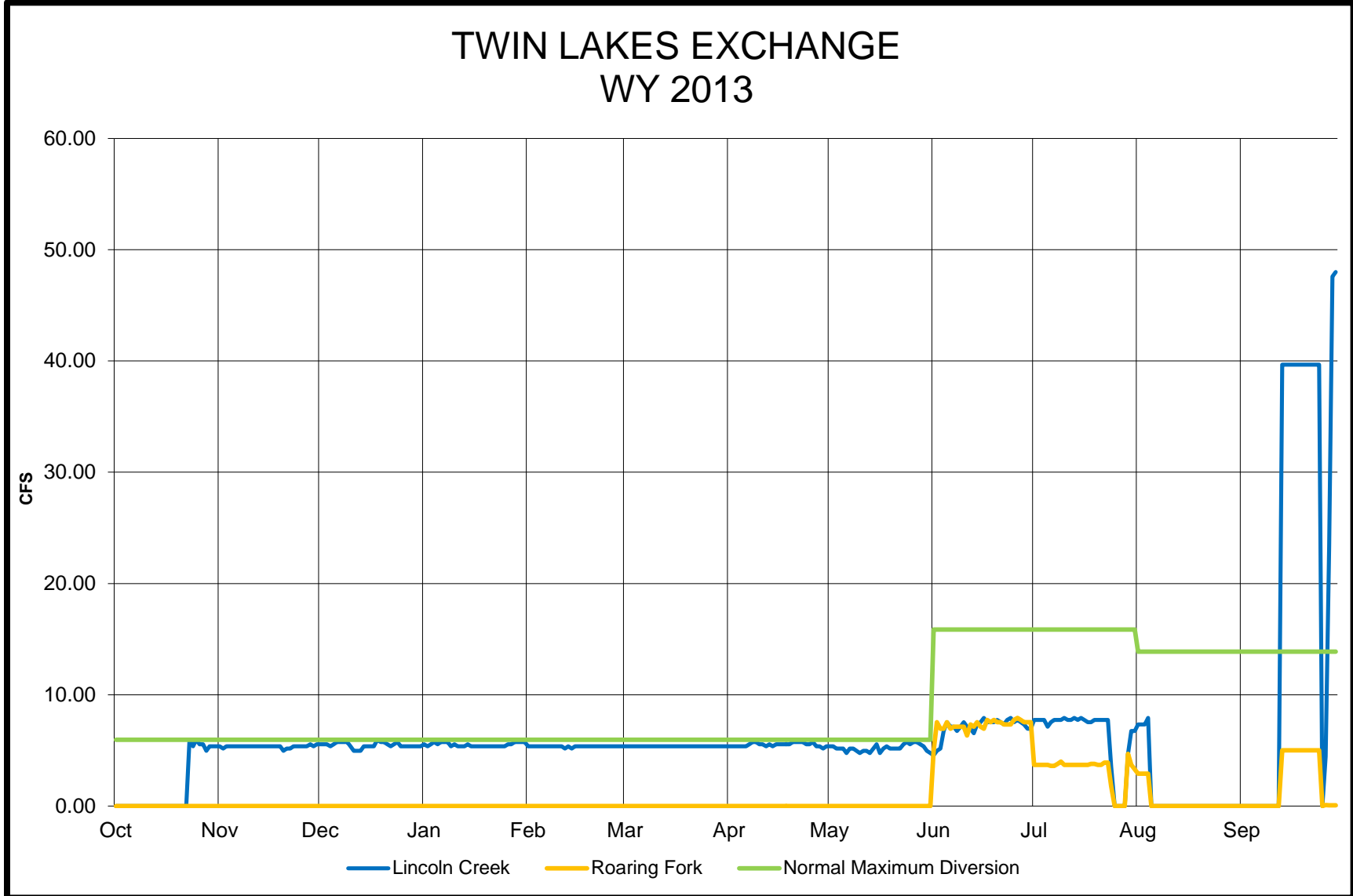
1. The water exchange will be implemented October 1 through September 30.
2. The releases to the Roaring Fork River at the Roaring Fork Diversion Dam and Lincoln Creek at the Grizzly Diversion Dam shall be accounted as follows¹:

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

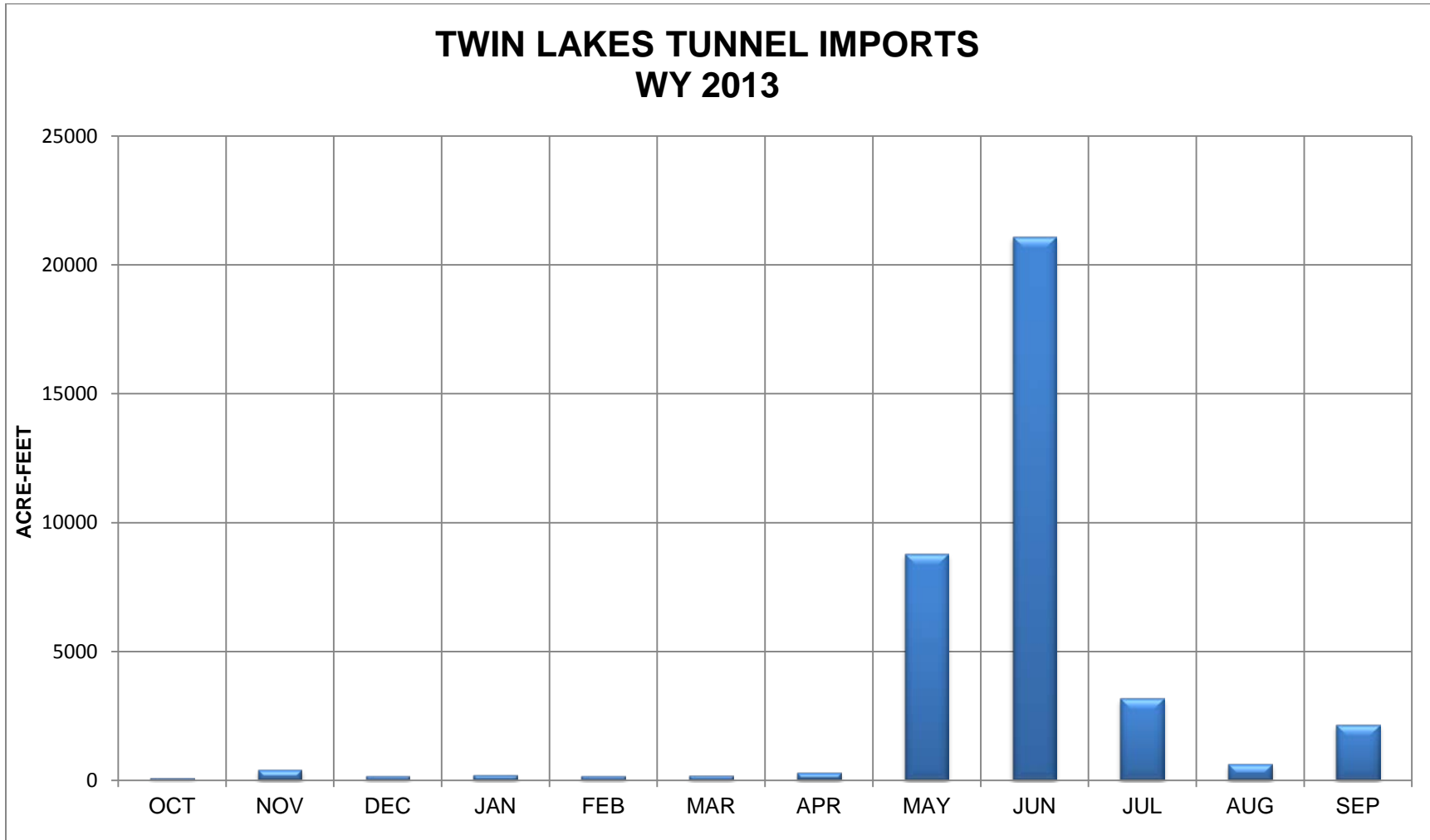
*On September 13, 2013, Southeastern Colorado Water Conservation District agreed to allow Twin Lakes Reservoir and Canal Company to forego up to 20 cfs on Lincoln Creek and 5 cfs on Roaring Fork.

3. At any time the Twin Lakes Reservoir and Canal Company (Company) is bypassing water, in addition to that designated above, it will be assumed that the Company could not have diverted that water and will not receive any credit for exchange in excess of the above amounts.
4. In the event less water than the above amounts is bypassed, only the amount actually bypassed will be credited.
5. The total volume of the release at both gages combined shall not exceed 3,000 acre-feet 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. In WY2012, the Cameo call on the Colorado River was in effect from June 21 through 30 September 30..

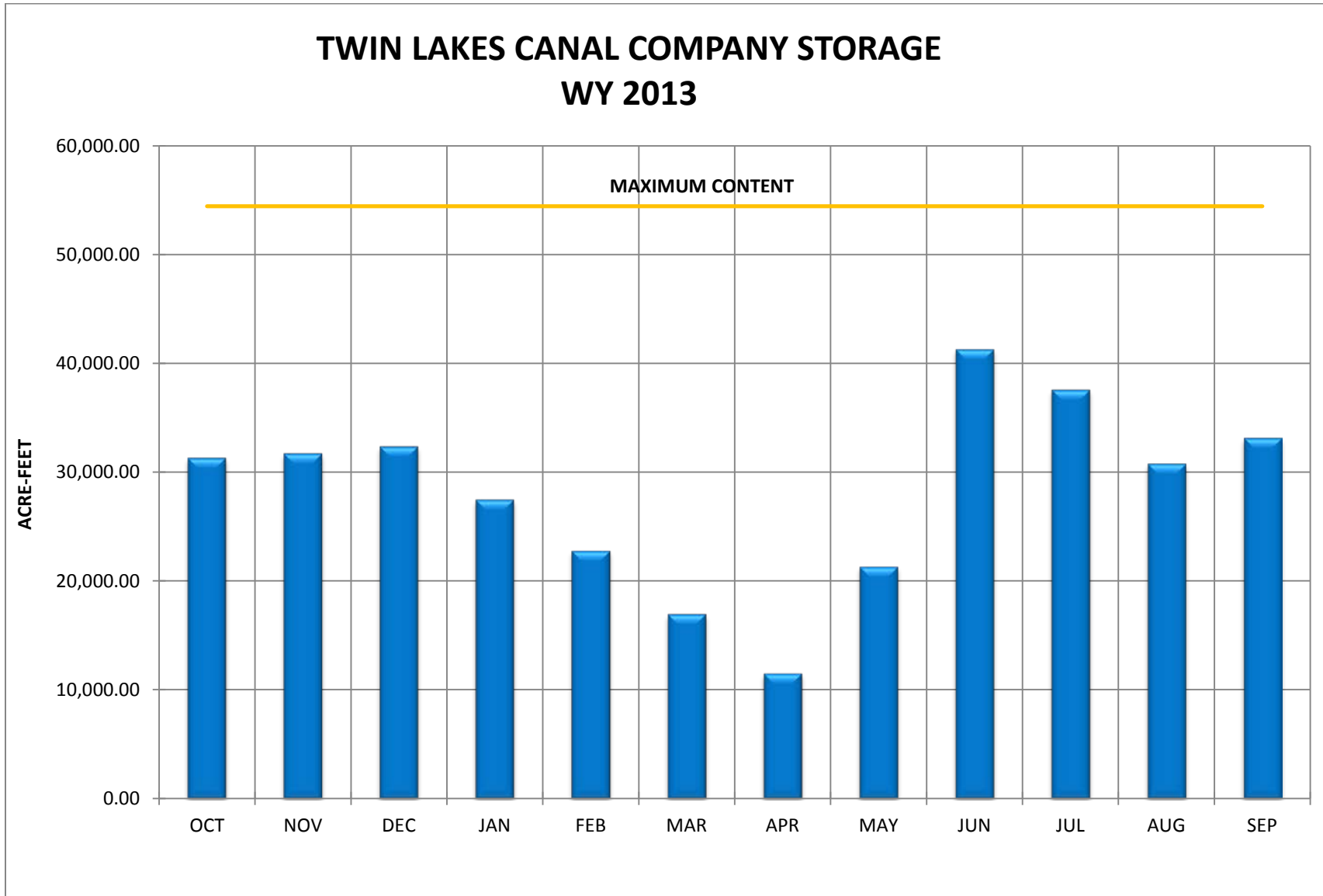
Twin Lakes Exchange



Twin Lakes Tunnel Imports



Twin Lakes Canal Company Storage



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

Carter Feeder Conduit near Norrie, CO

WY 2013						
Unit: Cubic Feet per Second						
Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.0	8.4	17.0	0.0	
2		0.0	22.7	17.6	0.0	
3		0.0	35.0	15.3	0.0	
4		0.0	40.7	14.4	0.0	
5		0.0	0.0	13.3	0.0	
6		0.0	48.5	11.9	0.0	
7		0.0	42.1	10.7	0.0	
8		0.0	38.3	14.5	0.0	
9		0.0	38.7	12.3	0.0	
10		0.0	45.6	9.3	0.0	
11		0.0	48.8	0.0	0.0	
12		0.0	46.7	0.0	0.0	
13		0.0	42.5	0.0	0.0	
14		22.3	42.0	0.0	0.0	
15		27.3	42.3	0.0	0.0	
16		30.6	36.0	0.0	0.0	
17		34.8	29.7	0.0	0.0	
18		0.0	33.4	0.0	0.0	
19		17.6	35.5	0.0	0.0	
20	0.0	10.2	35.1	0.0	0.0	
21	0.0	0.0	33.5	0.0	0.0	
22	0.0	0.0	31.3	0.0	0.0	
23	0.0	0.0	0.0	0.0	0.0	
24	0.0	24.2	0.0	0.0		
25	0.0	32.4	23.0	0.0		
26	0.0	38.5	27.9	0.0		
27	0.0	42.3	27.9	0.0		
28	0.0	34.1	24.1	0.0		
29	0.0	22.9	20.3	0.0		
30	0.0	12.9	17.2	0.0		
31	---	7.5	---	0.0		
TOTAL	0.0	357.6	917.3	136.3	0.0	
AVERAGE	0.0	11.5	30.6	4.4	0.0	
MAX	0.0	42.3	48.8	17.6	0.0	
MIN	0.0	0.0	0.0	0.0	0.0	

WY 2013 Total (April 20, 2013 to August 24, 2013): 2799.1 acre-feet

Maximum Instantaneous Peak: 48.8

Blank: Recorder not operated. No water diverted

North Fork Fryingpan River Feeder Conduit near Norrie, CO

WY 2013						
Unit: Cubic Feet per Second						
Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.2	2.6	0.5	0.0	
2		0.2	5.7	3.0	0.0	
3		0.2	10.9	3.7	0.0	
4		0.2	14.1	3.3	0.0	
5		0.2	0.0	3.1	0.0	
6		0.2	18.4	3.0	0.0	
7		0.2	16.4	2.7	0.0	
8		0.2	15.1	2.9	0.0	
9		0.2	17.4	2.5	0.0	
10		0.2	19.7	1.9	0.0	
11		0.2	19.9	1.7	0.0	
12		0.2	19.7	1.7	0.0	
13		0.2	19.3	1.7	0.0	
14		0.2	19.8	1.7	0.0	
15		0.2	17.9	1.7	0.0	
16		0.5	14.8	1.7	0.0	
17		0.0	12.5	1.7	0.0	
18		0.0	13.2	1.7	0.0	
19		0.3	13.3	1.7	0.0	
20	0.2	0.2	12.6	1.7	0.0	
21	0.2	0.0	11.7	1.7	0.0	
22	0.2	0.0	10.7	0.0	0.0	
23	0.2	0.0	0.0	0.0	0.0	
24	0.2	0.7	0.0	0.0		
25	0.2	2.2	6.5	0.0		
26	0.2	4.2	6.5	0.0		
27	0.2	5.8	6.5	0.0		
28	0.2	5.4	3.9	0.0		
29	0.2	0.0	0.5	0.0		
30	0.2	4.6	0.5	0.0		
31	---	2.9	---	0.0		
TOTAL	1.9	29.3	330.0	44.8	0.0	
AVERAGE	0.2	0.9	11.0	1.4	0.0	
MAX	0.2	5.8	19.9	3.7	0.0	
MIN	0.2	0.0	0.0	0.0	0.0	

WY 2013 Total (April 20, 2013 to August 24, 2013): 805.1 acre-feet
 Maximum Instantaneous Peak: 19.9
 Blank: Recorder not operated. No water diverted

South Fork Fryingpan River Feeder Conduit near Norrie, CO

WY 2013						
Unit: Cubic Feet per Second						
Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.9	33.2	11.1	0.0	
2		0.9	60.2	19.4	0.0	
3		0.9	87.3	16.9	0.0	
4		1.0	92.2	11.2	0.0	
5		1.0	0.0	11.4	0.0	
6		1.0	127.3	11.4	0.0	
7		1.0	118.0	8.6	0.0	
8		1.0	121.1	8.9	0.0	
9		1.0	125.0	4.1	0.0	
10		1.0	132.0	1.9	0.0	
11		1.0	131.1	0.5	0.0	
12		1.0	125.6	0.5	0.0	
13		3.0	119.9	0.5	0.0	
14		8.9	118.6	0.5	0.0	
15		26.1	93.4	0.5	0.0	
16		40.7	76.1	0.5	0.0	
17		0.0	69.8	0.5	0.0	
18		0.0	65.9	0.5	0.0	
19		40.5	54.5	0.5	0.0	
20	0.7	26.3	45.4	0.5	0.0	
21	0.8	0.0	31.6	0.5	0.0	
22	0.9	0.0	22.2	0.0	0.0	
23	0.8	0.0	0.0	0.0	0.3	
24	0.9	60.2	0.0	0.0		
25	0.9	80.6	11.4	0.0		
26	0.9	89.2	13.7	0.0		
27	0.9	91.8	14.0	0.0		
28	0.9	82.9	9.2	0.0		
29	0.9	0.0	4.2	0.0		
30	0.9	37.3	1.0	0.0		
31	---	28.4	---	0.0		
TOTAL	9.4	627.3	1904.0	110.3	0.3	
AVERAGE	0.9	20.2	63.5	3.6	0.0	
MAX	0.9	91.8	132.0	19.4	0.3	
MIN	0.7	0.0	0.0	0.0	0.0	

WY 2013 Total (April 20, 2013 to August 24, 2013): 5258.8acre-feet
 Maximum Instantaneous Peak: 132
 Blank: Recorder not operated. No water diverted

Mormon Creek Feeder Conduit near Norrie, CO

WY 2013						
Unit: Cubic Feet per Second						
Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.0	15.1	13.2	0.0	
2		0.0	29.3	11.1	0.0	
3		0.0	40.9	9.7	0.0	
4		0.0	45.8	8.4	0.0	
5		0.0	0.0	8.3	0.0	
6		0.0	44.7	7.9	0.0	
7		0.0	47.0	6.2	0.0	
8		0.0	50.2	6.2	0.0	
9		0.0	53.9	4.5	0.0	
10		0.0	57.9	2.0	0.0	
11		0.0	57.5	1.1	0.0	
12		0.0	56.6	1.1	0.0	
13		0.3	55.0	1.1	0.0	
14		2.6	54.3	1.1	0.0	
15		13.3	50.0	1.1	0.0	
16		16.1	41.6	1.1	0.0	
17		0.0	38.3	1.1	0.0	
18		0.0	39.8	1.1	0.0	
19		10.0	38.0	1.1	0.0	
20	0.0	4.5	36.0	1.1	0.0	
21	0.0	0.0	35.0	1.1	0.0	
22	0.0	0.0	32.1	0.0	0.0	
23	0.0	0.0	0.0	0.0	0.0	
24	0.0	18.4	0.0	0.0		
25	0.0	25.1	24.7	0.0		
26	0.0	30.1	25.1	0.0		
27	0.0	32.0	23.7	0.0		
28	0.0	26.2	21.8	0.0		
29	0.0	0.0	19.9	0.0		
30	0.0	13.1	16.2	0.0		
31	---	12.1	---	0.0		
TOTAL	0.0	203.7	1050.5	89.3		
AVERAGE	0.0	6.6	35.0	3.0		
MAX	0.0	32.0	57.9	13.2		
MIN	0.0	0.0	0.0	0.0		

WY 2013 Total (April 20, 2013 to August 24, 2013): 2665 acre-feet

Maximum Instantaneous Peak: 57.9

Blank: Recorder not operated. No water diverted

North Cunningham Feeder Conduit near Norrie, CO

WY 2013						
Unit: Cubic Feet per Second						
Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.0	5.5	4.5		
2		0.0	15.0	3.6		
3		0.0	20.8	3.0		
4		0.0	22.7	2.4		
5		0.0	0.0	2.2		
6		0.0	25.1	2.1		
7		0.0	23.7	1.5		
8		0.0	24.9	1.6		
9		0.0	25.8	1.4		
10		0.0	27.2	1.4		
11		0.0	27.7	1.4		
12		0.0	27.0	1.4		
13		0.1	25.7	1.4		
14		1.3	25.6	1.4		
15		5.0	24.7	1.4		
16		6.8	19.5	1.4		
17		0.0	18.7	1.4		
18		0.0	19.9	1.4		
19		3.3	19.5	1.4		
20	0.0	0.3	6.6	1.4		
21	0.0	0.0	1.4	1.4		
22	0.0	0.0	1.4	0.0		
23	0.0	0.0	0.0	0.0		
24	0.0	10.2	0.0	0.0		
25	0.0	13.1	11.5	0.0		
26	0.0	15.3	11.5	0.0		
27	0.0	16.2	10.2	0.0		
28	0.0	14.2	8.9	0.0		
29	0.0	0.0	7.5	0.0		
30	0.0	7.8	5.8	0.0		
31	---	5.9	---			
TOTAL	0.0	99.5	463.7	39.1		
AVERAGE	0.0	3.2	15.5	1.3		
MAX	0.0	16.2	27.7	4.5		
MIN	0.0	0.0	0.0	0.0		

WY 2013 Total (April 20, 2013 to August 24, 2013): 1194.9 acre-feet
 Maximum Instantaneous Peak: 27.7
 Blank: Recorder not operated. No water diverted

Middle Cunningham Feeder Conduit near Norrie, CO

WY 2013 Unit: Cubic Feet per Second Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.0	10.0	6.4		
2		0.0	17.5	5.5		
3		0.0	24.4	4.7		
4		0.0	27.8	4.1		
5		0.0	0.0	3.8		
6		0.0	31.5	3.6		
7		0.0	33.5	2.7		
8		0.0	36.1	2.7		
9		0.0	39.1	1.5		
10		0.0	40.0	0.7		
11		0.0	39.0	0.7		
12		0.0	37.5	0.7		
13		0.0	37.1	0.7		
14		0.0	37.9	0.7		
15		0.4	33.2	0.7		
16		2.3	28.5	0.7		
17		0.0	25.2	0.7		
18		0.0	25.1	0.7		
19		3.0	24.1	0.7		
20	0.0	1.2	22.5	0.7		
21	0.0	0.0	21.0	0.7		
22	0.0	0.0	18.7	0.0		
23	0.0	0.0	0.0	0.0		
24	0.0	8.3	0.0	0.0		
25	0.0	11.5	12.5	0.0		
26	0.0	14.4	12.1	0.0		
27	0.0	16.8	11.2	0.0		
28	0.0	16.7	10.2	0.0		
29	0.0	0.0	9.3	0.0		
30	0.0	10.1	7.8	0.0		
31	---	8.2	---			
TOTAL	0.0	92.8	672.8	43.5		
AVERAGE	0.0	3.0	22.4	1.4		
MAX	0.0	16.8	40.0	6.4		
MIN	0.0	0.0	0.0	0.0		

WY 2013 Total (April 20, 2013 to August 24, 2013): 1604.8
 Maximum Instantaneous Peak: 40
 Blank: Recorder not operated. No water diverted

Ivanhoe Creek Feeder Conduit near Norrie, CO

	April	May	June	July	August	September
		21.5	55.1	2.5		
		21.5	67.9	1.8		
		21.5	90.8	1.8		
		21.5	87.4	1.3		
		21.5	100.0	1.2		
		21.5	105.0	1.2		
		55.5	93.7	1.3		
		46.0	55.4	1.2		
		0.0	29.2	1.2		
	22.8	25.1	15.3	1.2		
	22.8	0.0	11.8	0.0		
	22.8	64.7	0.0	0.0		
	22.8	77.3	6.9	0.0		
	22.0	72.2	5.2	0.0		
	21.5	31.3	2.3	0.0		
	247.4	946.8	1389.6	30.7		
	22.8	79.6	116.4	2.6		

Lily Pad Creek Feeder Conduit near Norrie, CO

WY 2013						
Unit: Cubic Feet per Second						
Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.0	69.0	1.2	0.5	0.0
2		0.0	70.8	1.1	0.4	0.0
3		0.0	69.9	1.0	0.4	0.0
4		0.0	69.7	1.0	0.4	0.0
5		0.0	68.9	1.1	0.4	0.0
6		0.0	77.0	0.8	0.5	0.0
7		0.0	75.0	0.7	0.5	0.0
8		0.0	76.8	0.6	0.5	0.0
9		0.0	77.0	0.5	0.4	0.0
10		0.0	72.4	0.5	0.3	0.0
11		0.0	67.4	0.5	0.2	0.0
12		0.0	64.5	1.1	0.2	0.0
13		0.0	62.2	1.1	0.2	0.0
14		0.0	59.3	1.0	0.0	0.0
15		0.0	57.8	0.7	0.0	0.0
16		0.0	56.0	0.5	0.0	0.0
17		41.4	54.8	0.8	0.0	0.0
18		45.0	53.5	3.0	0.0	0.0
19		48.4	52.3	1.1	0.0	0.0
20	0.0	50.7	51.0	0.7	0.0	0.0
21	0.0	51.7	49.7	0.5	0.0	0.0
22	0.0	52.2	48.6	0.4	0.0	0.0
23	0.0	55.1	47.6	0.4	0.0	0.0
24	0.0	59.0	46.7	0.5	0.0	0.0
25	0.0	61.9	26.4	0.4	0.0	0.0
26	0.0	72.0	2.0	0.3	0.0	0.0
27	0.0	72.4	1.7	1.2	0.0	0.0
28	0.0	70.1	1.6	1.3	0.0	0.0
29	0.0	66.6	1.6	0.8	0.0	0.0
30	0.0	62.9	1.4	0.5	0.0	0.0
31	---	62.6	---	0.4	0.0	0.0
TOTAL	0.0	872.0	1532.3	25.5	4.9	
AVERAGE	0.0	58.1	51.1	0.8	0.4	
MAX	0.0	72.4	77.0	3.0	0.5	
MIN	0.0	0.0	1.4	0.3	0.0	

WY 2013 Total (April 20, 2013 to August 24, 2013): 4830.2 acre-feet

Maximum Instantaneous Peak: 77 cfs on June 6, 2013

Blank: Recorder not operated. No water diverted

Granite Creek Feeder Conduit near Norrie, CO

WY 2013 Unit: Cubic Feet per Second Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.6	11.7	12.1	0.0	4.3
2		0.6	17.4	11.1	0.0	4.4
3		0.6	22.4	10.2	0.0	4.4
4		0.6	25.4	9.4	0.0	4.4
5		0.6	0.0	9.6	0.0	4.4
6		0.6	29.1	10.5	0.0	3.0
7		0.6	27.1	8.4	0.0	
8		0.6	29.1	8.2	0.0	
9		0.6	32.3	7.0	0.0	
10		0.6	33.6	6.4	0.0	
11		0.6	33.8	5.9	0.0	
12		0.6	30.9	5.8	0.0	
13		0.6	28.8	5.7	0.0	
14		0.7	28.3	5.8	0.0	
15		1.1	24.5	5.6	0.0	
16		1.9	22.0	5.1	0.0	
17		0.0	20.0	5.0	0.0	
18		0.0	19.0	9.2	0.0	
19		6.7	17.6	8.5	0.0	
20	0.6	7.5	15.9	5.7	0.0	
21	0.6	0.0	14.7	5.1	0.0	
22	0.6	0.0	13.5	0.0	0.0	
23	0.6	0.0	0.0	0.0	4.4	
24	0.6	10.5	0.0	0.0	4.4	
25	0.6	15.7	14.7	0.0	4.4	
26	0.6	18.7	17.8	0.0	4.4	
27	0.6	20.4	17.0	0.0	4.4	
28	0.6	20.3	16.2	0.0	4.4	
29	0.6	0.0	14.9	0.0	4.4	
30	0.6	12.5	13.5	0.0	4.4	
31	---	10.4	---	0.0	4.4	
TOTAL	6.8	134.4	591.2	160.5	39.9	25.1
AVERAGE	0.6	4.3	19.7	5.2	0.0	4.2
MAX	0.6	20.4	33.8	12.1	4.4	4.4
MIN	0.6	0.0	0.0	0.0	0.0	0.0

WY 2013 Total (April 20, 2013 to August 24, 2013): 1850.0 acre-feet

Maximum Instantaneous Peak: 33.8

Blank: Recorder not operated. No water diverted

No Name Creek Feeder Conduit near Norrie, CO

WY 2013						
Unit: Cubic Feet per Second						
Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.0	23.5			
2		0.0	34.7			
3		0.0	33.5			
4		0.0	37.3			
5		0.0	29.6			
6		0.0	7.2			
7		0.0	4.7			
8		0.0	3.6			
9		0.0	26.3			
10		0.0	45.1			
11		0.0	40.2			
12		0.0	37.6			
13		0.0	33.9			
14		0.0	30.2			
15		0.0	22.3			
16		0.0	16.6			
17		3.3	14.6			
18		7.4	11.8			
19		4.4	4.2			
20	0.0	0.0				
21	0.0	0.0				
22	0.0	0.0				
23	0.0	0.0				
24	0.0	20.3				
25	0.0	30.4				
26	0.0	34.9				
27	0.0	36.4				
28	0.0	34.1				
29	0.0	24.6				
30	0.0	14.4				
31	---	14.1	---			
TOTAL	0.0	224.3	456.8	0.0	0.0	
AVERAGE	0.0	7.2	24.0	0.0	0.0	
MAX	0.0	36.4	45.1	0.0	0.0	
MIN	0.0	0.0	3.6	0.0	0.0	

WY 2013 Total (April 20, 2013 to August 24, 2013): 1351.2 acre-feet 3175.0 acre-feet

Maximum Instantaneous Peak: 45.1

Blank: Recorder not operated. No water diverted

Midway Creek Feeder Conduit near Norrie, CO

WY 2013 Unit: Cubic Feet per Second Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.0	29.9	1.1		
2		0.0	51.0	0.2		
3		0.0	60.7	0.1		
4		0.0	55.5	0.1		
5		0.0	44.4	0.1		
6		0.0	16.0	0.1		
7		0.0	30.5	0.1		
8		0.0	60.8	0.1		
9		0.0	75.5	0.0		
10		0.0	82.8	0.0		
11		0.0	84.0	0.0		
12		0.0	78.0	0.0		
13		0.0	74.2	0.0		
14		0.0	75.8	0.0		
15		0.0	64.0	0.0		
16		0.0	53.8	0.0		
17		0.0	48.8	0.0		
18		0.0	47.6	0.0		
19		0.0	42.7	0.0		
20	0.0	0.0	36.7	0.0		
21	0.0	0.0	33.1	0.0		
22	0.0	0.0	28.1	0.0		
23	0.0	0.0	20.8	0.0		
24	0.0	34.6	0.0	0.0		
25	0.0	45.8	18.8	0.0		
26	0.0	52.7	20.0	0.0		
27	0.0	54.1	16.0	0.0		
28	0.0	53.0	10.3	0.0		
29	0.0	40.4	6.5	0.0		
30	0.0	25.6	4.4	0.0		
31	---	21.9	---	0.0		
TOTAL	0.0	328.1	1270.6	1.9		
AVERAGE	0.0	10.6	42.4	0.1		
MAX	0.0	54.1	84.0	1.1		
MIN	0.0	0.0	0.0	0.0		

WY 2013 Total (April 20, 2013 to August 24, 2013): 3175.0 acre-feet

Maximum Instantaneous Peak: 84

Blank: Recorder not operated. No water diverted

Hunter Creek Feeder Conduit near Norrie, CO

WY 2013 Unit: Cubic Feet per Second Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.0	28.4	0.0	0.0	0.0
2		0.0	56.2	0.0	0.0	0.0
3		0.0	69.7	0.0	0.0	0.0
4		0.0	68.9	0.0	0.0	0.0
5		0.0	70.8	0.0	0.0	0.0
6		0.0	53.3	0.0	0.0	0.0
7		0.0	64.1	0.0	0.0	
8		0.0	80.8	0.0	0.0	
9		0.0	74.7	0.0	0.0	
10		0.0	58.5	0.0	0.0	
11		0.0	65.2	0.0	0.0	
12		0.0	56.2	0.0	0.0	
13		0.0	46.8	0.0	0.0	
14		0.0	46.1	0.0	0.0	
15		0.0	43.0	0.0	0.0	
16		6.0	39.7	0.0	0.0	
17		14.6	37.7	0.0	0.0	
18		33.8	34.9	0.0	0.0	
19		15.8	31.3	0.0	0.0	
20	0.0	0.0	28.7	0.0	0.0	
21	0.0	0.0	26.3	0.0	0.0	
22	0.0	0.0	22.6	0.0	0.0	
23	0.0	0.0	14.8	0.0	0.0	
24	0.0	47.5	0.0	0.0	0.0	
25	0.0	58.5	1.9	0.0	0.0	
26	0.0	64.0	0.0	0.0	0.0	
27	0.0	66.5	0.1	0.0	0.0	
28	0.0	61.9	0.0	0.0	0.0	
29	0.0	40.8	0.0	0.0	0.0	
30	0.0	20.1	0.0	0.0	0.0	
31	---	17.3	---	0.0	0.0	
TOTAL	0.0	446.8	1120.5	0.3		
AVERAGE	0.0	14.4	37.4	0.0		
MAX	0.0	66.5	80.8	0.0		
MIN	0.0	0.0	0.0	0.0		

WY 2013 Total (April 20, 2013 to August 24, 2013): 3109.5 acre-feet
 Maximum Instantaneous Peak: 80.8
 Blank: Recorder not operated. No water diverted

Sawyer Creek Feeder Conduit near Norrie, CO

WY 2013 Unit: Cubic Feet per Second Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		10.8	23.4	20.3	4.6	
2		10.3	28.8	19.3	4.6	
3		10.2	37.0	18.4	4.6	
4		10.2	40.4	17.5	4.6	
5		10.1	45.1	17.2	4.6	
6		10.3	50.2	18.0	4.6	
7		10.5	49.1	16.5	4.6	
8		10.6	51.4	16.3	4.6	
9		10.4	55.2	15.1	4.6	
10	8.4	10.3	57.4	11.0	4.6	
11	8.8	10.4	55.2	4.7	4.6	
12	8.9	11.4	53.9	4.7	4.6	
13	9.0	13.0	50.5	4.7	4.6	
14	9.1	14.8	49.6	4.6	4.6	
15	9.3	16.0	46.5	4.6	4.6	
16	9.6	17.8	43.5	4.6	4.6	
17	9.5	20.1	40.3	4.6	4.6	
18	9.4	20.9	38.5	4.6	4.6	
19	9.3	19.8	36.6	4.7	9.9	
20	9.3	18.6	34.9	4.7	2.6	
21	9.4	17.8	33.1	4.6	2.6	
22	9.3	18.3	31.2	4.6	2.6	
23	9.5	21.8	28.5	4.6	2.6	
24	9.5	27.0	26.2	4.6	2.6	
25	9.3	31.9	25.0	4.6	2.6	
26	9.3	37.8	24.7	4.6	0.0	
27	9.5	43.0	24.2	4.6	0.0	
28	10.1	43.7	23.4	4.6	0.0	
29	10.9	33.2	22.4	4.6	0.0	
30	11.1	18.2	21.3	4.6	0.0	
31	---	22.8	---	4.6	0.0	
TOTAL	198.5	582.0	1147.5	266.7	108.3	
AVERAGE	9.5	18.8	38.3	8.6	3.5	
MAX	11.1	43.7	57.4	20.3	9.9	
MIN	0.0	10.1	21.3	4.6	0.0	

WY 2013 Total (April 20, 2013 to August 24, 2013): 4568.0 acre-feet
 Maximum Instantaneous Peak: 57.4 on June 10, 2013
 Blank: Recorder not operated. No water diverted

Chapman Gulch Feeder Conduit near Norrie, CO

WY 2013 Unit: Cubic Feet per Second Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		0.8	188.4	25.4	0.0	1.3
2		0.7	233.7	19.6	0.0	1.3
3		0.7	229.9	14.4	0.0	1.3
4		0.7	0.0	16.4	0.0	1.3
5		0.7	174.8	18.4	0.0	0.9
6		0.7	186.0	12.6	0.0	0.0
7		0.7	247.3	13.2	0.0	
8		0.8	260.5	6.6	0.0	
9		0.7	278.1	3.0	0.0	
10		0.7	276.6	0.9	0.0	
11		0.7	273.8	0.9	0.0	
12		3.3	250.9	0.9	0.0	
13		6.3	248.4	0.9	0.0	
14		19.9	211.9	0.8	0.0	
15		41.7	173.6	0.7	0.0	
16		0.0	160.1	0.7	0.0	
17		0.0	154.8	0.9	0.0	
18		58.8	134.1	0.9	0.0	
19		21.1	108.0	0.9	0.0	
20	0.9	0.0	96.2	0.9	0.0	
21	0.9	0.0	83.6	0.0	0.0	
22	0.9	0.0	0.0	0.0	0.0	
23	0.9	137.0	0.0	0.0	0.0	
24	0.9	181.4	31.4	0.0	0.0	
25	0.9	206.5	34.0	0.0	0.7	
26	0.9	216.5	29.0	0.0	1.3	
27	1.0	207.7	19.2	0.0	1.3	
28	1.0	0.0	8.0	0.0	1.3	
29	0.9	95.1	4.7	0.0	1.3	
30	0.7	79.2	22.0	0.0	1.3	
31	---	102.7	---	0.0	1.2	
TOTAL	9.7	1385.0	4119.1	138.7	8.3	5.9
AVERAGE	0.9	44.7	137.3	4.5	0.3	1.0
MAX	1.0	216.5	278.1	25.4	1.3	1.3
MIN	0.7	0.0	0.0	0.0	0.0	0.0

WY 2013 Total (April 20, 2013 to August 24, 2013): 11228.4 acre-feet

Maximum Instantaneous Peak: 278.1

Blank: Recorder not operated. No water diverted

Fryingpan River Feeder Conduit near Norrie, CO

WY 2013 Unit: Cubic Feet per Second Source: Bureau of Reclamation						
	April	May	June	July	August	September
1		1.0	52.9	12.4	0.0	0.0
2		1.0	89.0	19.0	0.0	0.0
3		1.0	131.0	16.3	0.0	0.0
4		1.0	143.8	11.8	0.0	0.0
5		1.0	0.0	11.7	0.0	0.0
6		1.1	182.3	14.2	0.0	0.0
7		1.2	167.7	8.3	0.0	
8		1.0	175.6	9.0	0.0	
9		1.1	204.8	2.6	0.0	
10		1.1	213.0	1.1	0.0	
11		1.0	209.1	1.1	0.0	
12		1.0	190.5	1.2	0.0	
13		11.4	170.8	1.1	0.0	
14		29.5	169.2	1.1	0.0	
15		51.9	147.6	1.1	0.0	
16		73.5	116.1	1.0	0.0	
17		0.0	94.5	1.0	0.0	
18		0.0	91.1	1.0	0.0	
19		66.6	87.3	1.0	0.0	
20	1.0	39.5	80.1	1.0	0.0	
21	1.0	0.0	73.1	1.0	0.0	
22	1.0	0.0	66.4	0.0	0.0	
23	1.0	0.0	0.0	0.0	0.0	
24	1.0	100.1	0.0	0.0	0.0	
25	1.0	123.8	28.7	0.0	0.0	
26	1.0	136.3	23.4	0.0	0.0	
27	1.0	140.9	23.8	0.0	0.0	
28	1.0	134.3	13.8	0.0	0.0	
29	1.0	0.0	5.4	0.0	0.0	
30	1.0	72.0	2.1	0.0	0.0	
31	---	51.9	---	0.0	0.0	
TOTAL	11.0	1044.1	2953.0	117.9	11.0	
AVERAGE	1.0	33.7	98.4	3.8	1.0	
MAX	1.0	140.9	213.0	19.0	1.0	
MIN	1.0	0.0	0.0	0.0	1.0	

WY 2013 Total (April 20, 2013 to August 24, 2013): 8183.9 acre-feet
 Maximum Instantaneous Peak: 213
 Blank: Recorder not operated. No water diverted

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 acre-feet. 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 acre-feet: 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 acre-feet of water in any year, but not to exceed a total aggregate of 2,352,800 acre-feet in any period of 34 consecutive years reckoned in continuing progressive series starting with the first full year of diversions, both limitations herein being exclusive of Roaring Fork exchanges as provided in (c) below, and exclusive of diversions for the Busk-Ivanhoe decree; and with the further and absolute limitation that in

order to protect existing and future beneficial uses of water in Western Colorado, including recreational and fishing values, the State engineer shall so regulate the transmountain diversions above referred to, to the end that no diversions shall be made which will reduce the remaining aggregate streamflows to less than either of the following minimum standards:

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

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

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

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

10. For the protection of recreational values, including fishing, on the Fryingpan River below Ruedi Reservoir, releases of water from said reservoir, not to exceed the stream inflow, shall be made so that the streamflow immediately below the junction of the Fryingpan River and Rocky Fork shall not be reduced below 39 cfs from November 1 to April 30, and 110 cfs from May 1 to October 30, or as actual experience or court decree hereafter dictate.

11. An appropriate written contract may be made whereby Twin Lakes Reservoir and Canal Company shall refrain from diverting water whenever the natural flow of the Roaring Fork River and its tributaries shall be only sufficient to maintain a flow equal to or less than that required to maintain the recommended average flows in the Roaring Fork River immediately above its confluence with Difficult Creek in a quantity proportionate to the respective natural flow of the Roaring Fork River. The recommended average flows above mentioned are flows in quantities equal to those recommended as a minimum immediately above its confluence with Difficult Creek according to the following schedule submitted by the United States Fish and Wildlife Service and the Colorado Game and Fish Commission:

Month	Average Second-Feet	Acre-Feet (thousands)
October	44	2.7
November	35	2.1
December	29	1.8
January	26	1.6
February	25	1.4
March	24	1.5
April	64	3.8
May	100	6.2
June	120	7.1
July	100	6.2
August	63	3.9
September	44	2.6
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 acre-feet annually, be a project obligation to be supplied from any waters diverted from the south tributaries of Hunter Creek, Lime Creek, Last Chance Creek, or any of them.

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

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

12. All lands acquired and held for project construction and operation and water surfaces of project reservoirs will be open to the public for recreational purposes, excepting those areas reserved by the operating agency.
13. The project will be operated in such a manner that those in eastern Colorado using project water imported from the Colorado River Basin for domestic purposes shall have preference over those claiming or using water for any other purpose.
14. The project is to be operated in such a manner as to secure the greatest benefit from the use and reuse of imported project waters within project boundaries in the State of Colorado.
15. Any and all benefits and rights of western Colorado water users in and to water stored in Green Mountain Reservoir, as described and defined in Senate Document 80, 75th Congress, 1st session, shall not be impaired or diminished by this project.
16. The project, its operation, maintenance, and use shall be subject to the provisions of the Upper Colorado River Basin Compact of October 11, 1948 (Public Law 37, 81st Congress, 1st session), and the Colorado River Compact of November 24, 1922 (House Document 605, 67th Congress, 4th session).
17. The Colorado River Water Conservation District of the State of Colorado shall acquire title to storage of water in Ruedi Reservoir and any reservoir constructed in addition thereto, by appropriate proceedings in the courts of the State of Colorado. The Southeastern Colorado Water Conservancy District of the State of Colorado shall likewise acquire title to the water required by the project for diversion to the Arkansas Valley. The Secretary of the Interior shall at any time after the authorization of the project have the option to obtain or require the transfer to the United States of any and all rights initiated or acquired by appropriation as herein set forth: Provided, however, That the rights so taken shall be subject to a beneficial use of such water as may be

provided in the repayment contract or contracts, and subject to all the operating principles herein set forth.

18. No transmountain diversion of water shall ever be made through the collection and diversion system of the 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, this 9th day of December 1960.

COLORADO WATER CONSERVATION BOARD

Steve McNichols, Chairman;

Governor, State of Colorado

Attest:

Felix L. Sparks,

Director and Secretary

SOUTHEASTERN COLORADO WATER CONSERVANCY

DISTRICT

By J. Selby Young, President

Attest:

J. G. Shoun,

Secretary

COLORADO RIVER WATER CONSERVATION DISTRICT

By A. Allen Brown, President

Attest:

Philip P. Smith,

Secretary

SOUTHWESTERN WATER CONSERVATION DISTRICT

By Ira E. Kelly, President

Attest:

Archie B. Toner,

Secretary