

**ANNUAL OPERATING PLAN
FRYINGPAN-ARKANSAS PROJECT
WATER YEAR 2009 OPERATIONS**

I. GENERAL

This is the 40th 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 2009 (October 1, 2008 through September 30, 2009).

II. PROJECT FEATURES IN OPERATION DURING WATER YEAR 2009

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 7766.0 feet. The reservoir is operated on an annual cycle. Steady winter releases draft the reservoir such that it is filled with the spring snowmelt 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, wildlife habitat, and flood control.

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 8 tunnels. The system collects spring snowmelt runoff for diversion, by gravity, to the inlet of the Charles H. Boustead Tunnel. The Boustead Tunnel conveys water collected by the west slope collection system under the continental divide and into Turquoise Lake on the east slope. The tunnel is 5 miles long and has a water conveyance capacity of 945 cubic feet per second (cfs). Sugarloaf Dam and Turquoise Lake are located on Lake Fork Creek, a tributary of the Arkansas River, about 5 miles west of Leadville, Colorado.

The lake has a total capacity of 129,398 acre-feet at a water surface elevation of 9869.4 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 9200 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 the 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 4898.7 feet. The upper 26,991 acre-feet of storage space are reserved for flood control at all times, and an additional 66,000 acre-feet of space are reserved from April 15 through November 1.

Non-project water may be stored in the reservoir under temporary contract. 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 is 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. Other project deliveries are made as releases to the Arkansas River for diversion downstream. Pueblo Reservoir is also operated to provide for recreation and wildlife habitat.

III. HYDROLOGIC CONDITIONS AND WEATHER EVENTS IN WATER YEAR 2009

The weather around the Fryingpan River drainage area was average in water year 2009. The water year began with above average precipitation, which lasted until December. The following two months became drier and cold. A wetter pattern returned to the area in February and March, bringing total precipitation closer to the 30-year average. The month of April turned out to be relatively dry, but cold temperatures kept the snowpack water intact.

Temperatures began to warm up very slowly during May but not warm enough to melt the snow on the higher elevations. However, the snow in the lower reaches began to melt early in May. By the middle of the month, the runoff season was producing high inflows for Ruedi Reservoir. The Boustead Tunnel was also diverting at almost full capacity. The warmer weather also brought rain to the area. By early June, rain was falling on a daily basis, melting all the remaining snow in the upper reaches. The Boustead Tunnel benefited from this weather pattern. Its diversions increased in late June, pushing the total volume diverted for the year to more than 82,000 acre-feet.

By the end of June, the rainfall was ending and warmer weather arrived; but the snowpack was almost completely gone. Inflow to Ruedi Reservoir dropped rapidly in June and July. The monsoonal showers moved into the region by the middle of July; but with the snowpack completely gone, their intensity was not sufficient to push the Ruedi inflow up significantly.

The inflow to Ruedi for the year was sufficient to push the reservoir content to almost its full capacity, less than one-half foot from the top of the spillway. The inflow was also sufficient to keep Ruedi's level near the spillway crest from late June until early August. The high inflow in May also allowed the project to participate in the Coordinated Reservoir Operations (CROS) for 2009 in support of the endangered species of fish along the Colorado River. Inflow total for October of 2008 through September of 2009 was 101 percent of average, with an accumulated total volume of 131,200 acre-feet. The April through July season produced a total of 98,000 acre-feet of inflow to Ruedi.

IV. REPORT ON OPERATIONS DURING WATER YEAR 2009

A. Ruedi Reservoir

Ruedi Reservoir began the water year with a storage content of 81,804 acre-feet, which is 87 percent of average. Precipitation over the Fryingpan River Basin was slightly above average during the winter and early spring. By April 1, the snow-water content in the Fryingpan River Basin was estimated at 16.50 inches, 113 percent of average, which was higher than the previous year. All the releases during the winter and spring months were made through the city of Aspen's hydroelectric powerplant.

The releases for November were set at 78 cfs and remained at that rate until March. The spring forecast for runoff in the Fryingpan River Basin predicted high inflows for Ruedi Reservoir during water year 2009, given the relatively deep snowpack collected between November and March. The April through July runoff forecast called for 158,000 acre-feet of inflow. Despite the large volume of potential inflow predicted for Ruedi, releases were kept relatively low through April in preparation for CROS in May. The original plan for the CROS operation was to run 800 cfs for approximately eight days. However, the strong runoff in May left Ruedi's drainage area depleted of low level snow. The plans for CROS were changed by the middle of May, and the releases only reached 800 cfs for one day. As runoff continued through May and June, the reservoir level kept rising slowly. After CROS, the reservoir releases were reduced in 50-cfs increments, until reaching just below 300 cfs. By June 20, the reservoir level was approaching the spillway crest; therefore, releases were increased to 525 cfs. Once the inflow dropped by early July, the releases were reduced.

The early summer runoff was sufficient to keep the water surface at Ruedi Reservoir near the spillway crest level through July and into early August. With most of the snow gone by late July, inflow to Ruedi finally began to drop. The hot and dry conditions in August dropped streamflows in the Upper Colorado River Basin to minimum levels by the middle of the month. Supplemental water was required to meet established targets along the 15-Mile Reach of the Colorado River identified as critical habitat for the Upper Colorado River Endangered Fish Recovery Program. The program targets had been re-evaluated and set at a higher elevation along the 15-Mile Reach than in past years. The reservoir storage observed this summer was deemed adequate to make the 4-out-of-5-year, 5,000-acre-foot pool available to the endangered fish this year. The total volume of water released from Ruedi to support the target flows at the 15-Mile Reach in Grand Junction between August and September, was 20,825 acre-feet, which included 5,000 acre-feet from the firm fish pool; the 10,825 acre-feet of mitigation water; and 5,000 acre-feet from the 4-out-of-5-year fish pool. Releases from Ruedi were increased to 500 cfs during the middle of August and slowly reduced as the month advanced. By the end of August, the flow was approximately 370 cfs. The high releases caused the reservoir water level to drop almost 18 feet during August. During September, the releases were slowly reduced and the reservoir elevation stabilized. The 5,000 acre-foot of water in the firm fish pool were exhausted by August 16, and the 10,825 acre-feet of mitigation water were exhausted by September 2.

Also, the entire 5,000 acre-feet of water in the 4-out-of-5-year fish pool were released during 2009. That follows the order of release from the various sources of Ruedi water available to support the endangered fish. With no river calls for Ruedi in water year 2009, there were no contract water releases.

Ruedi ended the water year with a water surface level of 7739.0 feet and 77,675 cfs in storage. That is 82 percent of average--the 30-year average. The total cumulative precipitation for the year at Ruedi was 18.7 inches, or 84 percent of average.

B. West Slope Collection System and Project Diversions

The import of project water through the Boustead Tunnel began on April 20, 2009, and concluded on August 8, 2009. The daily discharge record for the diversion structures is included as Appendix D. A total of 82,703 acre-feet was imported during the 2009 water year, which is 171 percent of average. There was no Busk-Ivanhoe water imported through the Boustead Tunnel. The maximum mean daily import was 891 cfs on June 26, 2009. The most probable forecasts for the first of February, March, April, and May were 79,100 acre-feet, 74,100 acre-feet, 77,500 acre-feet, and 63,600 acre-feet, respectively.

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 4. The 38 years of accumulated imports total 1,925,700 acre-feet, for an average of 50,676 acre-feet per year. A plot of the Boustead Tunnel imports during water year 2009 is shown on Exhibit 5.

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, 2008, 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 at Twin Lakes Reservoir was 2,971 acre-feet. The operating criteria and the monthly summary of the exchange are shown in Appendix C.

D. Turquoise Lake

On September 30, 2008, there were 105,200 acre-feet of water (elevation of 9855.47 feet) stored in Turquoise Lake, 119 percent of average. Releases made to Twin Lakes through the Mt. Elbert Conduit drafted Turquoise Lake to 56,780 acre-feet (elevation 9823.87 feet), the lowest storage of the water year, by May 7, 2009. There were 120,900 acre-feet of water (elevation 9864.60 feet) in storage at the end of the water year, 137 percent of average.

Homestake Tunnel imports totaled 50,609 acre-feet during the water year, 198 percent of average. Busk-Ivanhoe imports totaled 1,400 acre-feet, 27 percent of average, and were divided between the Pueblo Board of Water Works and the city of Aurora. Project water imports through the Boustead Tunnel totaled 82,700 acre-feet, 163 percent of average.

Exhibits 8 and 9 show the precipitation and pan evaporation at Turquoise Lake. Exhibits 5, 6, and 7 show the monthly imports through the Boustead, Homestake, and Busk-Ivanhoe Tunnels, respectively. Table 5 and Exhibit 10 depict the monthly operation of Turquoise Lake during the 2009 water year.

E. Mt. Elbert Conduit/Halfmoon Creek Diversion

During water year 2009, 131,337 acre-feet of water released from Turquoise Lake, and 8,767 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 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 121,094 acre-feet of water (elevation 9192.40 feet) on September 30, 2008. The combined storage of Twin Lakes and the Mt. Elbert Forebay was 128,600 acre-feet. Twin Lakes Reservoir releases to Lake Creek were made throughout the winter to pass the entire flow of the Mt. Elbert Conduit, and to transfer the project water stored in the reservoir to Pueblo Reservoir. The native inflow was stored in the Twin Lakes Reservoir and Canal Company storage space from November 15 through March 15. A total of 30,819 acre-feet of project water was released to Lake Creek during this time. This water was released such that the flow in the Arkansas River at the Wellsville gage was maintained as close to the average October 15 to November 15 trout-spawning flow as possible. The combined reservoir and forebay water storage reached a low point of 97,426 acre-feet on March 31, 2009, and was at its high point of 137,705 acre-feet on July 16, 2009. A total of 9,146 acre-feet of project water was released to augment rafting flows in the Arkansas River during the period of July 1 to August 15.

At least one generating/pumping unit was available at the Mt. Elbert Powerplant throughout the 2009 water year. The capacity of one unit is greater than the capacity of the Mt. Elbert Conduit. A total of 233,681 megawatt-hours of energy was generated at the powerplant, with 727,526 acre-feet of water; 140,624 acre-feet came through the Mt. Elbert Conduit; and 562,007 acre-feet were first pumped to the Mt. Elbert Forebay from Twin Lakes during off-peak electric demand hours. Table 7 depicts the monthly powerplant operation for the 2009 water year.

G. Pueblo Reservoir

The water storage content of Pueblo Reservoir was 178,565 acre-feet (elevation 4861.16 feet) on September 30, 2008, 133 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 48,037 acre-feet of native inflow was stored in the reservoir under the winter water storage program from November 15, 2008, through March 14, 2009. During the water year, 31,072 acre-feet of winter water and 14,016 acre-feet of winter water carryover were released, and 2,528 acre-feet evaporated. The reservoir reached a high point in storage of 253,141 acre-feet (elevation 4879.66 feet) on April 3, 2009. There were 193,160 acre-feet (elevation 4865.13 feet) in storage on September 30, 2009. This is 146 percent of average and 63,789 acre-feet less than a full conservation pool.

Table 8 and Exhibit 20 depict Pueblo Reservoir monthly operations during the 2009 water year. The 2008-09 winter water storage is shown on Exhibit 17, and the winter water releases are shown on Exhibit 18. The pan evaporation at the reservoir is shown on Exhibit 19.

H. Storage Contracts

There were eight contracts for storage of non-project water in project storage space on the east slope in effect in water year 2009. Six of those were long-term contracts: the Twin Lakes Reservoir and Canal Company for 54,452 acre-feet; 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. There were two long-term, non-firm contracts: Pueblo Board of Water Works and city of Aurora. The remaining contracts were interim, 1-year contracts for "if-and-when" storage space. 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 78,000 acre-feet of Fryingpan-Arkansas Project water made available to the Southeastern Colorado Water Conservancy District during water year 2009. The district purchased 50,263 acre-feet and called for 35,284 acre-feet of project and project carryover water during the year. Evaporation reduced the project water in storage by 6,790 acre-feet. By the end of the water year (September 30, 2009), the district had 31,565 acre-feet of 2009 allocated water and 107,226 acre-feet of carryover water remaining in storage. Of the 35,284 acre-feet of project water released, 4,939 acre-feet were for municipal and industrial use, and 30,345 acre-feet were for irrigation. The monthly release of project water from Pueblo Reservoir is shown on Exhibit 21.

J. Reservoir Storage Allocation Data

Table 9 presents the reservoir storage allocations for the five project reservoirs.

K. Reservoir Evaporation and Precipitation

Tables 11 and 12 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 10. The assumption is that there is no evaporation from a reservoir water surface when ice completely covers the reservoir.

L. Flood Control Benefits

Releases from Ruedi Reservoir did not create any flooding situation downstream during WY 2009 due to a combination of adequate reservoir capacity, timely releases, and maximum diversions through the Boustead Tunnel. However, the U. S. Army Corps of Engineers estimated that the operations at Ruedi Reservoir during WY 2009 prevented a total of \$740,100 in potential flood damages. Since impoundment, Ruedi Reservoir has prevented a total of \$12,321,400 in potential flood damages.

The snowpack in the Arkansas River Basin was above average during WY 2009. However, the reservoir level for Pueblo Reservoir did not reach the flood pool, and the reservoir releases were always below levels that could cause economic damage.

Therefore, the Corps of Engineers has determined that Pueblo Reservoir did not directly prevent any flooding downstream during WY 2009.

Table 13 shows the historic flood control benefits provided by Pueblo and Ruedi Dams.

Table 1

Ruedi Reservoir
Water Year 2009 Operations
Unit: 1,000 Acre-Feet

Year	Month	Inflow	Evaporation*	Outflow	End of Month Content	Water Surface Elevation (FEET)
2008	Sep				81.8	7743.86
	Oct	3.7	0	8.5	77.0	7738.17
	Nov	3.4	0	4.4	76.0	7736.99
	Dec	3.2	0	4.5	74.7	7735.44
2009	Jan	2.6	0	4.4	73.0	7733.22
	Feb	2.4	0	4.4	70.9	7730.63
	Mar	4.0	0	6.8	68.1	7727.03
	Apr	9.7	0	9.0	68.8	7727.96
	May	38.4	0.2	18.1	88.9	7751.89
	Jun	34.7	0.6	21.8	101.1	7764.76
	Jul	15.5	0.6	14.3	101.7	7765.36
	Aug	8.2	0.4	24.5	85.0	7747.51
	Sep	5.3	0.2	12.5	77.7	7739.00
Total		131.1	2.0	133.2		

Table 2-1

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2009
 April-09

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? (1= YES 0= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
THU	4/1/2009	7,726.96	68037	83	0	110	4	113	no	39	0	0	1321
FRI	4/2/2009	7,726.84	67946	63	0	110	4	113	no	39	0	0	1137
SAT	4/3/2009	7,726.76	67885	79	0	110	4	113	no	39	0	0	1112
SUN	4/4/2009	7,726.66	67809	72	0	110	4	113	no	39	0	0	1492
MON	4/5/2009	7,726.52	67702	56	0	110	4	113	no	39	0	0	1278
TUE	4/6/2009	7,726.40	67611	64	0	110	4	113	no	39	0	0	1123
WED	4/7/2009	7,726.31	67542	76	0	110	5	113	no	39	0	0	989
THU	4/8/2009	7,726.28	67519	98	0	110	5	114	no	39	0	0	1056
FRI	4/9/2009	7,726.34	67565	133	0	110	5	114	no	39	0	0	1132
SAT	4/10/2009	7,726.34	67565	116	0	116	5	120	no	39	0	0	1328
SUN	4/11/2009	7,726.27	67512	128	0	154	6	159	no	39	0	0	1433
MON	4/12/2009	7,726.18	67443	120	0	154	6	159	no	39	0	0	1649
TUE	4/13/2009	7,726.07	67359	112	0	154	6	159	no	39	0	0	1613
WED	4/14/2009	7,726.00	67306	127	0	154	7	159	no	39	0	0	1644
THU	4/15/2009	7,725.95	67268	135	0	154	8	160	no	39	0	0	1722
FRI	4/16/2009	7,725.97	67284	163	0	155	8	162	no	39	0	0	2032
SAT	4/17/2009	7,725.92	67246	137	0	156	7	162	no	39	0	0	2129
SUN	4/18/2009	7,725.84	67185	125	0	156	7	162	no	39	0	0	1867
MON	4/19/2009	7,725.77	67132	129	0	156	8	171	no	39	0	0	1710
TUE	4/20/2009	7,725.74	67110	144	0	155	8	162	no	39	0	0	1630
WED	4/21/2009	7,725.82	67170	185	0	154	9	161	no	39	0	0	1912
THU	4/22/2009	7,726.09	67374	257	0	154	9	162	no	39	0	0	2623
FRI	4/23/2009	7,726.41	67619	277	0	154	10	162	no	39	0	0	3482
SAT	4/24/2009	7,726.75	67878	293	0	163	11	171	no	39	0	0	4315
SUN	4/25/2009	7,727.03	68091	315	0	207	12	218	no	39	0	0	5479
MON	4/26/2009	7,727.28	68283	303	0	207	14	218	no	39	0	0	6291
TUE	4/27/2009	7,727.41	68383	252	0	206	14	219	no	39	0	0	6146
WED	4/28/2009	7,727.50	68452	245	0	207	14	218	no	39	0	0	4773
THU	4/29/2009	7,727.62	68544	253	0	206	14	218	no	39	0	0	3982
FRI	4/30/2009	7,727.96	68804	337	0	205	13	217	no	39	0	0	4427
Averages		7,726.50	67687	163	0	151	8	157			0		2428
Totals (acft)				9675	0	8962	470	9356			0		144455

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 9/24. A total of 20,825 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.
 NOTES: The values presented in these tables were compiled from operational records.
 NOTES: These are preliminary records and open to revision.

Table 2-2

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2009
 May-09

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL	ROCKY	FRYINGPAN	RUEDI	REQUIRED	ENDANGERED	CUMULATIVE	PALISADE
						RESERVOIR RELEASE (CFS)	FORK CREEK (CFS)	RIVER GAGE BELOW DAM (CFS)	CALLED OUT? (1= YES) (0= NO)	MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	FISH RELEASE (CFS)	FISH RELEASE (AC-FT)	GAGE (CFS)
THU	5/1/2009	7,728.39	69137	372	0	204	14	217	no	110	0	0	5704
FRI	5/2/2009	7,728.80	69454	366	0	206	16	220	no	110	0	0	6838
SAT	5/3/2009	7,729.21	69773	366	0	206	18	222	no	110	0	0	7099
SUN	5/4/2009	7,729.62	70092	366	0	205	17	222	no	110	0	0	7081
MON	5/5/2009	7,729.92	70326	316	0	198	17	215	no	110	0	0	6794
TUE	5/6/2009	7,730.39	70695	338	0	152	16	168	no	110	0	0	5942
WED	5/7/2009	7,731.14	71285	451	0	153	17	170	no	110	0	0	6937
THU	5/8/2009	7,732.05	72006	517	0	153	25	178	no	110	0	0	8945
FRI	5/9/2009	7,732.92	72700	504	0	154	28	182	no	110	0	0	10213
SAT	5/10/2009	7,733.80	73408	512	0	156	28	184	no	110	0	0	10077
SUN	5/11/2009	7,734.65	74095	503	4	156	31	187	no	110	0	0	10315
MON	5/12/2009	7,735.64	74901	568	4	159	35	193	no	110	0	0	10944
TUE	5/13/2009	7,736.69	75760	600	4	162	38	199	no	110	0	0	12863
WED	5/14/2009	7,737.64	76544	568	4	169	37	205	no	110	0	0	13134
THU	5/15/2009	7,738.39	77167	576	4	259	38	295	no	110	0	0	13507
FRI	5/16/2009	7,738.86	77558	588	4	367	39	406	no	110	0	0	13991
SAT	5/17/2009	7,739.31	77935	658	4	464	43	506	no	110	0	0	15116
SUN	5/18/2009	7,739.90	78429	814	4	560	48	607	no	110	0	0	16319
MON	5/19/2009	7,740.57	78995	937	4	649	53	700	no	110	0	0	17425
TUE	5/20/2009	7,740.97	79333	884	4	710	52	760	no	110	0	0	17759
WED	5/21/2009	7,741.58	79851	898	4	634	52	683	no	110	0	0	18516
THU	5/22/2009	7,742.27	80439	829	4	529	54	581	no	110	0	0	13518
FRI	5/23/2009	7,743.17	81210	844	4	451	55	504	no	110	0	0	12951
SAT	5/24/2009	7,744.41	82281	902	4	358	62	417	no	110	0	0	13488
SUN	5/25/2009	7,745.64	83352	824	4	280	63	341	no	110	0	0	11279
MON	5/26/2009	7,746.83	84397	797	4	266	59	325	no	110	0	0	11799
TUE	5/27/2009	7,747.94	85378	756	4	258	58	315	no	110	0	0	11720
WED	5/28/2009	7,748.92	86250	658	4	215	54	270	no	110	0	0	12352
THU	5/29/2009	7,749.83	87064	645	4	231	50	281	no	110	0	0	12554
FRI	5/30/2009	7,750.79	87928	672	4	233	48	281	no	110	0	0	12567
SAT	5/31/2009	7,751.89	88924	740	4	233	47	281	no	110	0	0	12743
Averages		7,738.78	77634	625	3	295	39	333			0		11629
Totals (acft)				38418	154	18112	2400	20455			0		715033

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 9/24. A total of 20,825 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.
 NOTES: The values presented in these tables were compiled from operational records.
 NOTES: These are preliminary records and open to revision.

Table 2-3

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2009
 June-09

DAY	DATE	ELEV. (FT)	STORAGE (AC-FT)	INFLOW (CFS)	EVAP. (CFS)	TOTAL	ROCKY	FRYINGPAN	RUEDI	REQUIRED	ENDANGERED	CUMULATIVE	PALISADE
						RESERVOIR RELEASE (CFS)	FORK CREEK (CFS)	RIVER GAGE BELOW DAM (CFS)	CALLED OUT? (1= YES) (0= NO)	MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	FISH RELEASE (CFS)	FISH RELEASE (AC-FT)	GAGE (CFS)
THU	6/1/2009	7,753.18	90,103	837	10	233	49	283	no	110	0	0	13,024
FRI	6/2/2009	7,754.44	91,263	830	10	235	53	288	no	110	0	0	13,254
SAT	6/3/2009	7,755.83	92,554	898	10	238	61	298	no	110	0	0	14,117
SUN	6/4/2009	7,757.06	93,707	833	10	242	62	304	no	110	0	0	14,503
MON	6/5/2009	7,758.05	94,641	760	10	279	59	338	no	110	0	0	14,386
TUE	6/6/2009	7,758.92	95,468	706	10	279	56	335	no	110	0	0	14,215
WED	6/7/2009	7,759.70	96,213	665	10	279	51	330	no	110	0	0	13,476
THU	6/8/2009	7,760.34	96,828	598	10	278	47	325	no	110	0	0	11,991
FRI	6/9/2009	7,760.91	97,377	566	10	279	44	323	no	110	0	0	10,559
SAT	6/10/2009	7,761.41	97,861	533	10	279	41	320	no	110	0	0	10,071
SUN	6/11/2009	7,762.09	98,521	622	10	279	40	319	no	110	0	0	9,781
MON	6/12/2009	7,762.52	98,941	500	10	278	38	316	no	110	0	0	9,907
TUE	6/13/2009	7,762.90	99,311	475	10	278	36	314	no	110	0	0	9,554
WED	6/14/2009	7,763.31	99,713	490	10	277	36	313	no	110	0	0	9,154
THU	6/15/2009	7,763.72	100,116	492	10	278	34	313	no	110	0	0	9,273
FRI	6/16/2009	7,764.10	100,489	477	10	278	34	311	no	110	0	0	9,218
SAT	6/17/2009	7,764.47	100,855	473	10	278	33	311	no	110	0	0	9,492
SUN	6/18/2009	7,764.81	101,190	491	11	312	32	344	no	110	0	0	9,878
MON	6/19/2009	7,765.11	101,487	507	11	246	32	378	no	110	0	0	10,423
TUE	6/20/2009	7,765.39	101,766	559	11	408	32	439	no	110	0	0	10,754
WED	6/21/2009	7,765.49	101,866	503	11	442	32	525	no	110	0	0	11,395
THU	6/22/2009	7,765.47	101,846	553	11	553	31	583	no	110	0	0	12,112
FRI	6/23/2009	7,765.43	101,806	544	11	554	30	583	no	110	0	0	12,286
SAT	6/24/2009	7,765.28	101,656	488	11	553	28	581	no	110	0	0	12,152
SUN	6/25/2009	7,765.28	101,656	529	11	519	29	548	no	110	0	0	12,211
MON	6/26/2009	7,765.38	101,756	564	11	503	32	535	no	110	0	0	13,500
TUE	6/27/2009	7,765.49	101,866	613	11	547	30	578	no	110	0	0	14,901
WED	6/28/2009	7,765.20	101,577	504	11	639	27	666	no	110	0	0	14,636
THU	6/29/2009	7,764.90	101,279	447	11	587	25	611	no	110	0	0	13,747
FRI	6/30/2009	7,764.76	101,141	416	10	476	23	498	no	110	0	0	12,043
Averages		7,762.36	98,828.43	582.39	10.33	363.42	38.57	407.03			0.00		11,867.03
Totals (acft)				34,655	615	21,625	2,295	24,221			0		706,148

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 9/24. A total of 20,825 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.
 NOTES: The values presented in these tables were compiled from operational records.
 NOTES: These are preliminary records and open to revision.

Table 2-4

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2009
 July-09

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? (1= YES) (0= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
THU	7/1/2009	7764.72	101102	362	9	372	21	393	no	110	0	0	10747
FRI	7/2/2009	7764.82	101200	374	9	315	20	336	no	110	0	0	9706
SAT	7/3/2009	7764.90	101279	365	9	315	20	337	no	110	0	0	9024
SUN	7/4/2009	7764.92	101299	335	9	315	19	335	no	110	0	0	10136
MON	7/5/2009	7764.92	101299	324	9	334	18	334	no	110	0	0	9371
TUE	7/6/2009	7764.90	101279	304	9	305	17	323	no	110	0	0	8842
WED	7/7/2009	7764.89	101269	280	9	275	15	291	no	110	0	0	8136
THU	7/8/2009	7764.84	101220	259	9	275	14	290	no	110	0	0	7188
FRI	7/9/2009	7764.79	101171	260	9	275	13	289	no	110	0	0	6446
SAT	7/10/2009	7764.80	101180	148	9	234	13	247	no	110	0	0	5846
SUN	7/11/2009	7764.86	101240	258	9	219	12	232	no	110	0	0	5403
MON	7/12/2009	7764.90	101279	248	9	219	12	231	no	110	0	0	5059
TUE	7/13/2009	7764.92	101299	238	9	219	11	231	no	110	0	0	4816
WED	7/14/2009	7764.93	101309	233	9	219	11	231	no	110	0	0	4682
THU	7/15/2009	7765.01	101388	221	9	171	10	182	no	110	0	0	4414
FRI	7/16/2009	7765.11	101487	231	9	172	10	182	no	110	0	0	4063
SAT	7/17/2009	7765.17	101547	212	9	172	9	182	no	110	0	0	3709
SUN	7/18/2009	7765.22	101597	207	9	172	9	182	no	110	0	0	3487
MON	7/19/2009	7765.25	101627	197	9	173	9	182	no	110	0	0	3222
TUE	7/20/2009	7765.33	101706	222	9	173	8	182	no	110	0	0	2885
WED	7/21/2009	7765.36	101736	197	9	173	8	182	no	110	0	0	2711
THU	7/22/2009	7765.37	101746	188	9	173	8	182	no	110	0	0	2568
FRI	7/23/2009	7765.39	101766	193	9	174	8	182	no	110	0	0	2272
SAT	7/24/2009	7765.40	101776	188	9	174	8	182	no	110	0	0	2082
SUN	7/25/2009	7765.41	101786	188	9	174	8	182	no	110	0	0	1875
MON	7/26/2009	7765.62	101995	288	9	173	8	182	no	110	0	0	2110
TUE	7/27/2009	7765.75	102124	270	10	195	8	204	no	110	0	0	2204
WED	7/28/2009	7765.71	102084	234	10	244	7	252	no	110	0	0	2160
THU	7/29/2009	7765.59	101965	223	9	273	8	282	no	110	0	0	2066
FRI	7/30/2009	7765.50	101876	238	9	273	7	281	no	110	0	0	2098
SAT	7/31/2009	7765.36	101736	212	9	273	7	281	no	110	0	0	2118
Averages		7765.15	101528	248	9	233	12	245			0		4885
Totals (acft)				15268	582	14327	709	15044			0		300392

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 9/24. A total of 20,825 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.
 NOTES: The values presented in these tables were compiled from operational records.
 NOTES: These are preliminary records and open to revision.

Table 2-5

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2009
 August-09

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? (1= YES) (0= NO)	REQUIRED MIN FLOW BELOW RUEDI w /o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
SUN	8/1/2004	7765.25	101627	223	7	272	7	279	no	110	0	0	2224
MON	8/2/2004	7765.06	101438	183	7	271	7	279	no	110	0	0	2415
TUE	8/3/2004	7764.87	101250	183	7	271	7	279	no	110	0	0	2323
WED	8/4/2004	7764.64	101022	164	7	272	7	279	no	110	0	0	1979
THU	8/5/2004	7764.37	100756	160	7	288	7	295	no	110	44	87	1753
FRI	8/6/2004	7764.08	100469	179	7	317	6	324	no	110	150	384	1619
SAT	8/7/2004	7763.77	100164	169	7	316	6	323	no	110	150	682	1507
SUN	8/8/2004	7763.44	99841	159	7	316	6	322	no	110	150	979	1442
MON	8/9/2004	7763.08	99488	145	7	316	6	322	no	110	150	1277	1392
TUE	8/10/2004	7762.66	99077	133	7	334	6	340	no	110	167	1608	1286
WED	8/11/2004	7762.13	98560	134	7	388	6	394	no	110	200	2005	1321
THU	8/12/2004	7761.48	97929	127	7	439	6	446	no	110	250	2501	1251
FRI	8/13/2004	7760.70	97175	133	7	507	6	513	no	110	330	3155	1119
SAT	8/14/2004	7759.98	96481	162	7	505	6	512	no	110	330	3810	1104
SUN	8/15/2004	7759.28	95811	172	7	503	6	510	no	110	330	4464	1204
MON	8/16/2004	7758.53	95097	147	7	501	7	509	no	110	330	5119	1431
TUE	8/17/2004	7757.76	94367	141	6	502	5	508	no	110	330	5773	1443
WED	8/18/2004	7756.98	93631	136	6	501	6	507	no	110	330	6428	1235
THU	8/19/2004	7756.18	92881	128	6	500	5	506	no	110	330	7083	1206
FRI	8/20/2004	7755.37	92126	124	6	498	5	504	no	110	330	7737	1184
SAT	8/21/2004	7754.60	91411	118	6	472	8	479	no	110	330	8392	1133
SUN	8/22/2004	7753.88	90746	115	6	444	7	451	no	110	330	9046	1178
MON	8/23/2004	7753.17	90093	120	6	443	6	450	no	110	330	9701	1248
TUE	8/24/2004	7752.45	89435	115	6	441	6	449	no	110	330	10355	1305
WED	8/25/2004	7751.74	88788	118	6	437	6	449	no	110	330	11010	1338
THU	8/26/2004	7751.00	88117	89	6	421	6	448	no	96	330	11664	1393
FRI	8/27/2004	7750.28	87468	79	6	400	6	432	no	85	322	12303	1450
SAT	8/28/2004	7749.60	86858	81	6	382	6	416	no	87	306	12910	1422
SUN	8/29/2004	7748.91	86241	72	6	377	6	416	no	78	306	13517	1427
MON	8/30/2004	7748.22	85627	67	6	371	6	415	no	73	305	14123	1416
TUE	8/31/2004	7747.51	84997	57	6	368	6	414	no	63	304	14726	1440
Averages		7757.77	94483	133	6	399	6	412			239		1458
Totals (acft)				8200	399	24541	379	25328			14726		89633

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 9/24. A total of 20,825 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.
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 NOTES: These are preliminary records and open to revision.

Table 2-6

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2009
 September-09

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? (1= YES) (0= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
WED	9/1/2004	7,746.81	84379	80	4	387	6	414	no	86	304	15328	1403
THU	9/2/2004	7,746.14	83790	92	4	385	4	389	no	96	279	15882	1364
FRI	9/3/2004	7,745.58	83300	91	4	334	4	338	no	95	228	16334	1214
SAT	9/4/2004	7,745.12	82898	108	4	307	4	310	no	110	200	16731	1081
SUN	9/5/2004	7,744.60	82446	82	4	307	4	310	no	86	200	17129	956
MON	9/6/2004	7,744.12	82029	101	4	307	4	311	no	105	201	17527	998
TUE	9/7/2004	7,743.62	81598	92	4	307	4	310	no	96	200	17924	1020
WED	9/8/2004	7,743.18	81219	89	4	276	4	279	no	93	169	18259	1051
THU	9/9/2004	7,742.83	80919	81	4	230	4	233	no	85	123	18504	1086
FRI	9/10/2004	7,742.49	80628	86	4	229	4	233	no	90	123	18747	1033
SAT	9/11/2004	7,742.20	80379	107	4	229	4	232	no	110	122	18990	909
SUN	9/12/2004	7,741.94	80157	120	4	228	4	232	no	110	122	19231	898
MON	9/13/2004	7,741.67	79927	116	4	228	4	231	no	110	121	19471	898
TUE	9/14/2004	7,741.40	79698	115	4	227	4	231	no	110	121	19711	903
WED	9/15/2004	7,741.13	79468	102	4	214	4	217	no	106	107	19923	936
THU	9/16/2004	7,740.93	79299	81	4	163	4	166	no	85	56	20034	1149
FRI	9/17/2004	7,740.73	79130	81	4	163	4	166	no	85	56	20145	1286
SAT	9/18/2004	7,740.49	78927	64	4	163	4	166	no	68	56	20256	1182
SUN	9/19/2004	7,740.32	78783	94	4	163	4	166	no	98	56	20367	1087
MON	9/20/2004	7,740.16	78648	98	4	163	4	166	no	102	56	20479	1059
TUE	9/21/2004	7,740.01	78521	102	4	163	4	166	no	106	56	20589	1108
WED	9/22/2004	7,739.84	78379	93	4	162	4	165	no	97	55	20699	1212
THU	9/23/2004	7,739.66	78228	89	4	162	4	165	no	93	55	20809	1326
FRI	9/24/2004	7,739.54	78128	80	4	131	4	131	no	84	8	20825	1336
SAT	9/25/2004	7,739.46	78060	80	4	110	4	114	no	84	0	20825	1330
SUN	9/26/2004	7,739.39	78002	84	3	110	4	114	no	88	0	20825	1260
MON	9/27/2004	7,739.32	77943	84	3	110	4	114	no	88	0	20825	1207
TUE	9/28/2004	7,739.24	77876	80	3	110	4	114	no	84	0	20825	1183
WED	9/29/2004	7,739.13	77784	67	3	110	4	114	no	71	0	20825	1119
THU	9/30/2004	7,739.00	77675	59	3	110	4	113	no	63	0	20825	1124
Averages		7,741.67	79941	90	4	210	4	214			102		1124
Totals (acft)				5355	211	12472	236	12713			6099		66883

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 9/24. A total of 20,825 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.
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 NOTES: These are preliminary records and open to revision.

Table 2-7

FRYINGPAN-ARKANSAS PROJECT
 RUEDI RESERVOIR
 RELEASES FOR ENDANGERED FISH
 WATER YEAR 2009
 October-09

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? (1= YES) (0= NO)	REQUIRED MIN FLOW BELOW RUEDI w/o FISH REL (CFS)	ENDANGERED FISH RELEASE (CFS)	CUMULATIVE FISH RELEASE (AC-FT)	PALISADE GAGE (CFS)
FRI	10/1/2004	7,738.90	77,592	69	1	110	4	58	no	73	0	20,825	1,172
SAT	10/2/2004	7,738.79	77,500	65	1	110	4	54	no	69	0	20,825	1,213
SUN	10/3/2004	7,738.71	77,433	78	1	110	4	60	no	81	0	20,825	1,264
MON	10/4/2004	7,738.64	77,375	82	1	110	4	58	no	86	0	20,825	1,279
TUE	10/5/2004	7,738.55	77,300	74	1	110	4	61	no	77	0	20,825	1,320
WED	10/6/2004	7,738.46	77,225	73	1	110	4	61	no	77	0	20,825	1,370
THU	10/7/2004	7,738.37	77,150	73	1	110	4	62	no	77	0	20,825	1,383
FRI	10/8/2004	7,738.30	77,092	82	1	110	4	64	no	86	0	20,825	1,389
SAT	10/9/2004	7,738.22	77,025	78	1	110	4	63	no	81	0	20,825	1,400
SUN	10/10/2004	7,738.10	76,925	61	1	110	4	62	no	64	0	20,825	1,391
MON	10/11/2004	7,738.03	76,867	82	1	110	4	59	no	85	0	20,825	1,359
TUE	10/12/2004	7,737.92	76,776	65	1	110	4	57	no	69	0	20,825	1,333
WED	10/13/2004	7,737.83	76,701	73	1	109	4	58	no	77	0	20,825	1,286
THU	10/14/2004	7,737.83	76,701	110	1	109	4	68	no	110	0	20,825	1,291
FRI	10/15/2004	7,737.77	76,652	84	1	108	4	76	no	88	0	20,825	1,418
SAT	10/16/2004	7,737.73	76,619	89	1	104	4	71	no	93	0	20,825	1,482
SUN	10/17/2004	7,737.71	76,602	75	1	82	4	67	no	79	0	20,825	1,505
MON	10/18/2004	7,737.70	76,594	80	1	83	4	67	no	84	0	20,825	1,454
TUE	10/19/2004	7,737.68	76,578	77	1	84	4	69	no	81	0	20,825	1,424
WED	10/20/2004	7,737.68	76,578	86	1	85	5	69	no	92	0	20,825	1,440
THU	10/21/2004	7,737.66	76,561	61	1	68	23	67	no	83	0	20,825	1,461
FRI	10/22/2004	7,737.62	76,528	45	1	60	31	65	no	75	0	20,825	1,564
SAT	10/23/2004	7,737.59	76,503	61	1	72	18	63	no	79	0	20,825	1,573
SUN	10/24/2004	7,737.58	76,495	84	1	86	4	61	no	88	0	20,825	1,525
MON	10/25/2004	7,737.55	76,470	75	1	86	4	67	no	79	0	20,825	1,619
TUE	10/26/2004	7,737.48	76,412	58	1	86	4	53	no	62	0	20,825	1,428
WED	10/27/2004	7,737.28	76,246	4	1	86	4	63	no	8	0	20,825	1,441
THU	10/28/2004	7,737.25	76,222	75	1	86	4	60	no	78	0	20,825	1,483
FRI	10/29/2004	7,737.14	76,131	41	1	85	4	50	no	45	0	20,825	1,486
SAT	10/30/2004	7,737.08	76,081	59	1	83	4	55	no	63	0	20,825	1,473
SUN	10/31/2004	7,737.07	76,073	71	1	74	3	58	no	75	0	20,825	1,393
Averages		7,737.88	76742	71	1	95	6	62			0		1407
Totals (acft)				4340	80	5863	355	3820			0		86517

NOTES: Releases of water to support 15-Mile Reach target flows ceased on 9/24. A total of 20,825 acre-feet were released to support Recovery Program target flows in the 15-Mile Reach.
 NOTES: The values presented in these tables were compiled from operational records.
 NOTES: These are preliminary records and open to revision.

Table 3

Fryingpan-Arkansas Project
Transmountain Diversions
Water Year 2009
Unit: Acre-Feet

<u>Diversion</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	
<u>Total</u>							
No Name		1,827	1,496			3,323	
Hunter		2,916	3,112	36		6,064	
Sawyer		1,751	2,513	768		5,032	
Midway		2,632	3,324	222		6,178	
Chapman ¹	175	1,454	2,059	628		4,316	
South Fork	81	4,034	5,004	1,162		10,281	
Subtotal	256	14,614	17,508	2,816		35,194	
Carter	103	1,619	2,043	1,041		4,806	
North Fork	345	484	97			926	
Mormon	8	1,694	2,277	512		4,491	
N. Cunningham	20	1,085	1,325	208		2,638	
M. Cunningham ²	2	1,014	1,724	355		3,095	
Ivanhoe	83	3,463	4,025	565		8,136	
Lily Pad		906	930	299		2,135	
Granite		912	1,482	379		2,773	
Fryingpan	371	7,414	7,085	2,630		17,500	
Subtotal	932	18,591	20,988	5,989		46,500	
Total	1,188	33,205	38,496	8,805		81,694	
Boustead Tunnel ³	759 ⁴	32,817	40,452	8,634	38	3	82,703

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.

⁴ Includes minimal flow from October through March 2009

Table 4

Fryingpan-Arkansas Project Imports
Charles H. Boustead Tunnel Outlet
Unit: 1,000 Acre-feet

<u>Year</u>	<u>Imports</u>	<u>Accumulated Imports</u>	<u>Twin Lakes Exchange</u>	<u>Available for Allocations</u>
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 ⁵	537.6	0.3	125.0
1984	110.1 ⁶	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	1,047.1	2.3	70.1
1994	52.2	1,099.3	1.3	51.7
1995	90.5	1,189.8	2.3	55.0
1996	36.9	1,226.7	1.8	110.0
1997	78.6	1,305.3	1.8	116.0
1998	51.3	1,356.6	2.6	102.0
1999	40.8	1,397.4	2.1	127.5
2000	44.8	1,442.2	1.7	171.6
2001	45.3	1,487.5	2.1	67.5
2002	13.2	1,500.7	1.5	8.5
2003	54.9	1,555.6	2.4	37.5
2004	27.4	1,583.0	1.3	15.3
2005	54.6	1,637.6	3.0	40.8
2006	61.2	1,698.8	3.0	49.2
2007	54.2	1,753.0	3.0	40.4
2008	90.0	1,843.0	3.0	83.0
2009	82.7	1,925.7	3.0	78.0

Restriction: Not to exceed 120,000 acre-feet in 1 year but not to exceed 2,352,800 acre-feet in 34 consecutive years.

⁵ Includes 3,120 acre-feet imported through Twin Lakes Tunnel.

⁶ Includes 2,080 acre-feet imports through Boustead Tunnel in October and 420 acre-feet in November. All other years are water year totals.

Table 5

Turquoise Lake
Water Year 2009 Operations
Unit: 1,000 Acre-Feet

		Inflow									
Surface		Busk-Ivanhoe		Homestake	Project	Native	Total		Total	End of Month	Water
Elevation		Imports		Imports	Imports	Inflow	Inflow	Evap	Outflow	Content	
(FEET)											
Year	Month	Through Carlton	Through Boustead								
2008	Sep									105.2	9855.47
	Oct	0.1	0	0	0.1	0	0.2	0.3	1.0	104.0	9854.75
	Nov	0	0	0	0.1	0.2	0.3	0.2	1.0	103.1	9854.22
	Dec	0	0	0	0.1	0.8	0.9	0	7.0	96.9	9850.50
2009	Jan	0	0	0	0	1.9	1.9	0	21.5	77.4	9838.21
	Feb	0	0	0	0	1.2	1.2	0	15.9	62.7	9828.22
	Mar	0.1	0	18.0	0.1	1.5	19.7	0	22.2	60.3	9826.45
	Apr	0.1	0	16.4	0.5	2.5	19.5	0	21.6	58.2	9824.90
	May	0.6	0	3.0	32.8	12.3	48.7	0.3	16.3	90.2	9846.40
	Jun	0.4	0	9.2	40.4	12.3	62.3	0.5	25.3	126.7	9867.91
	Jul	0	0	3.9	8.6	5.2	17.7	0.7	21.2	122.6	9865.55
	Aug	0	0	0.1	0	1.5	1.6	0.7	1.5	122.0	9865.20
	Sep	0.1	0	0	0	0.2	0.3	0.3	1.0	120.9	9864.60
Subtotal		1.4	0								
Total		1.4	0	50.6	82.7	39.6	174.3	3.0	155.5		

Table 6

Twin Lakes/Mt. Elbert Forebay
Water Year 2009 Operations
Unit: 1,000 Acre-Feet

Year	Month	Inflow				Native Inflow	Total Inflow	Evap	Total Outflow	End of Month Content ⁷	Water Surface Elevation ⁸ (FEET)
		Twin Lakes Canal Company	Mt. Elbert	Conduit	Project Water						
		Imports	Other	Halfmoon							
2008	Sep									128.6	9192.40
	Oct	0.9	0	0	0.5	1.8	3.2	0.5	12.0	119.6	9187.99
	Nov	1.3	0.7	0	0.5	0.6	3.1	0.3	11.8	110.0	9183.44
	Dec	1.6	1.2	0	6.5	0.3	9.6	0	13.1	105.1	9180.46
2009	Jan	1.4	1.1	0	21.0	0	23.5	0	16.6	109.4	9182.49
	Feb	0.9	0.6	0	15.6	0.1	17.2	0	19.5	105.4	9181.24
	Mar	0.7	0.3	0	21.6	0.4	23.0	0	29.4	97.4	9177.28
	Apr	0.7	0	0	20.8	2.3	23.8	0.2	14.3	105.5	9181.55
	May	24.0	0	4.2	14.7	24.0	66.9	1.0	43.1	125.9	9190.59
	Jun	22.5	0	2.9	16.2	26.8	68.4	1.0	53.5	136.4	9195.05
	Jul	8.8	0	1.1	12.8	14.0	36.7	1.3	36.9	133.5	9193.79
	Aug	1.6	0.4	0.6	0.6	3.6	6.8	1.2	19.6	119.9	9188.10
	Sep	<u>0.8</u>	<u>0</u>	<u>0</u>	<u>0</u>	2.0	3.3	0.6	1.9	120.9	9188.55
Subtotal		65.2	4.3	8.8	131.3						
Total		69.5		140.1		75.9	285.5	6.1	271.7		

⁷ Contents of both Twin Lakes and Mt. Elbert Forebay

⁸ Elevation of Twin Lakes

Table 7

Mt. Elbert Pumped-Storage Powerplant Operations
Water Year 2009

Year	Month	Mt. Elbert Conduit Inflow to Mt. Elbert Forebay (acre-ft)	Water Pumped from Twin Lakes to Mt. Elbert Forebay (acre-ft)	Water through Generator (acre-ft)	Megawatt- Hours Net Generation* (mWh)
2008	Oct	616	55,630	54,675	17,975
	Nov	596	56,420	56,239	19,409
	Dec	6,623	41,372	46,866	15,639
2009	Jan	20,901	35,833	56,685	19,111
	Feb	15,590	25,199	42,018	14,139
	Mar	21,786	44,814	66,362	22,141
	Apr	21,110	40,487	61,398	20,539
	May	19,175	50,664	98,843	23,477
	Jun	18,569	49,789	68,917	22,810
	Jul	13,857	53,052	65,078	21,833
	Aug	1,214	54,683	55,748	18,698
	Sep	597	54,064	54,697	17,910
Total		140,624	562,007	727,526	233,681

*Net Generation is gross plant generation less station service .

Table 8

Pueblo Reservoir
Water Year 2009 Operations
Unit: 1,000 Acre-Feet

Year	Month	Inflow			Total Inflow	Evapo- ration	Outflow	End of month content	Water surface elevation (FEET)
		Project Water	Other	Native					
2008	Sep						178.6	4861.16	
	Oct	0.3	2.7	17.9	20.9	1.2	22.0	176.2	4860.51
	Nov	1.0	2.3	20.4	23.7	0.6	17.1	182.4	4862.21
	Dec	2.4	2.5	19.1	24.0	0.5	8.3	197.6	4866.31
2009	Jan	7.3	2.6	17.7	27.6	0.5	7.9	216.8	4871.18
	Feb	10.1	2.6	15.8	28.5	0.7	7.3	237.3	4876.10
	Mar	17.5	3.6	15.4	36.5	1.4	20.3	252.1	4879.43
	Apr	1.0	4.6	19.5	25.1	1.7	44.2	231.3	4874.68
	May	0.3	7.5	106.5	114.3	2.3	130.4	212.9	4870.21
	Jun	6.5	13.3	131.8	151.6	2.5	139.3	222.6	4872.61
	Jul	10.8	15.4	66.9	93.1	2.6	92.1	221.0	4872.20
	Aug	8.0	5.7	20.6	34.3	2.6	51.6	201.1	4867.20
	Sep	<u>0.3</u>	<u>2.7</u>	<u>13.6</u>	16.6	1.7	22.8	193.2	4865.13
Subtotal		65.5	65.5	465.2					
Total					596.2	18.3	563.3		

Table 9

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	63,324	72,938	67,917	0	0	140,855
Mt. Elbert Forebay	561	3,825	7,318	0	0	11,143 ¹

¹ New area-capacity tables (1984)

² New area-capacity table (1994)

Note: Inactive includes dead storage

Table 10

Fryingpan-Arkansas Project
Monthly Evaporation Factors

Meredith		Sugar Loaf	Twin Lakes	Pueblo
Month	Factor	Factor	Factor	Factor
Oct	<u>1/</u>	.220	.220	.247
Nov		.100	.100	.155
Dec		.030	.030	.133
Jan		.050	.050	.128
Feb		.080	.080	.173
Mar		.140	.140	.280
Apr		.233	.233	.308
May		.363	.363	-
Jun		.448	.448	-
Jul		.405	.405	-
Aug		.318	.318	-
Sep		.290	.290	-

Note: Factor is used when pan is not in operation. Factor divided by number of days in the month times reservoir area not covered by ice equals daily water surface evaporation in acre-feet.

1/ Factors have not been determined for Meredith. Factors from Twin Lakes are used for Meredith.

Table 11

Fryingpan-Arkansas Project
 Monthly Average vs. Current Water Year Evaporation
 (Unit = Inches)

Month	Meredith		Sugar Loaf		Twin Lakes		Pueblo	
	Ave Pan (In.)	WY 09	Ave Pan (In.)	WY 09	Ave Pan (In.)	WY 09	Ave Pan (In.)	WY 09
Oct	0.89		2.34	3.44	2.73	3.67	5.36	5.82
Nov	0		1.57	1.70	1.70	1.89	2.63	2.66
Dec	0		0.30	0.53	0.37	0.53	2.28	2.28
Jan	0.21		0	0.85	0	0.85	2.19	2.19
Feb	0		0	1.39	0	1.39	2.98	2.97
Mar	0		0.30	2.39	0.54	2.39	4.86	5.58
Apr	0.21		0.62	4.01	1.85	4.01	6.36	6.60
May	2.33	3.09	1.66	3.45	4.57	5.97	8.79	9.79
Jun	7.49	10.82	5.47	4.64	7.36	5.31	10.17	10.86
Jul	7.60	10.06	5.25	5.48	6.79	7.45	10.94	11.26
Aug	6.06	7.23	4.21	6.29	5.58	7.51	9.00	11.58
Sep	4.02	4.26	3.45	2.16	4.87	3.42	7.34	7.73

Table 12

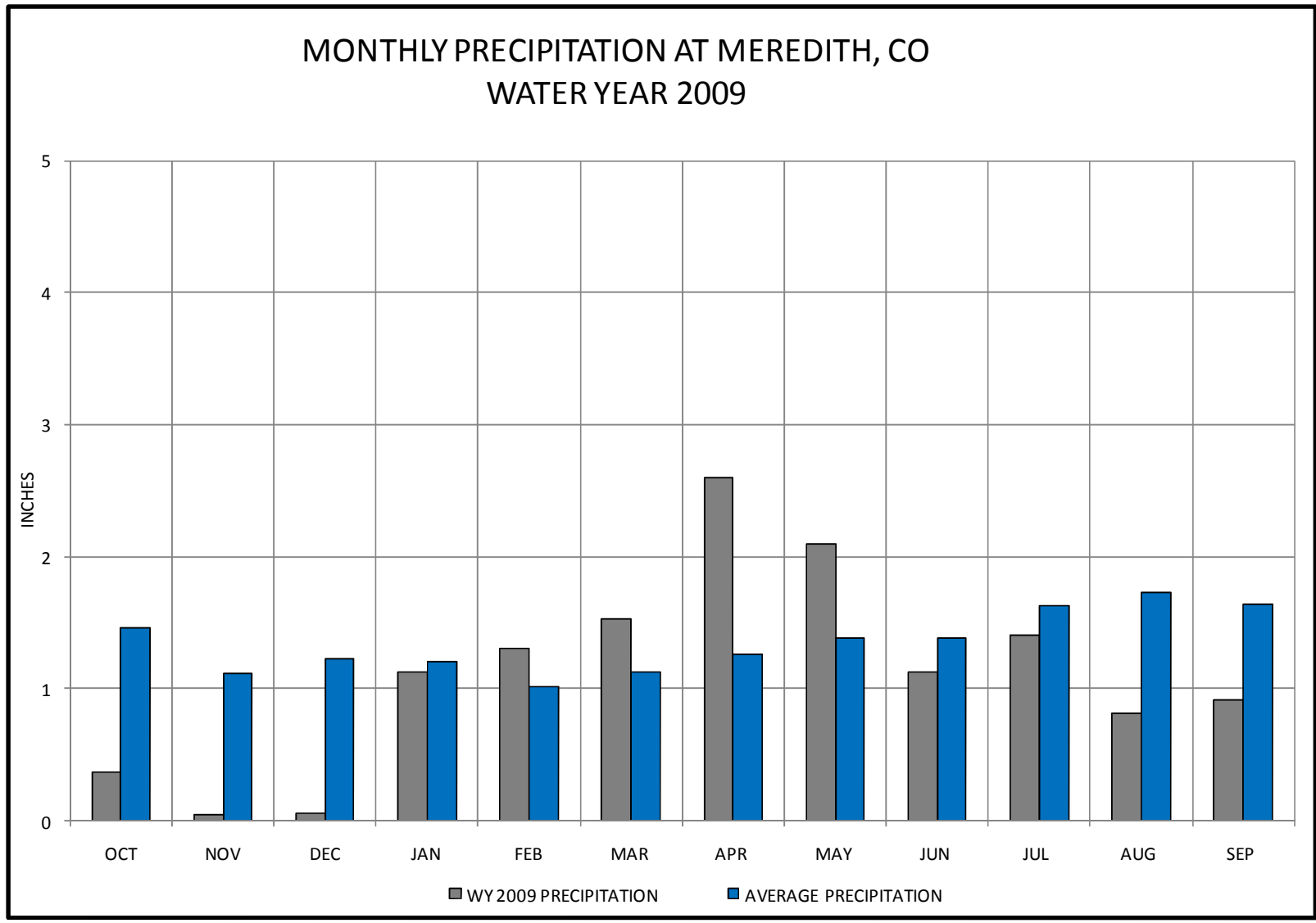
Fryingpan-Arkansas Project
 Monthly Average Vs. Current Water Year Precipitation
 (Unit = Inches)

Month	Meredith		Sugar Loaf		Twin Lakes		Pueblo		Rocky Ford	
	Avg.	WY 09	Avg.	WY 09	Avg.	WY 09	Avg.	WY 09	Avg.	WY 09
Oct	1.46	0.37	0.97	0.80	0.64	0.43	0.65	0.47	0.78	1.70
Nov	1.11	0.04	1.28	1.58	0.51	0.18	0.54	0.30	0.46	0.22
Dec	1.22	0.05	1.23	2.26	0.47	1.06	0.37	0.64	0.32	0.17
Jan	1.20	1.13	1.43	3.41	0.40	0.25	0.28	0.04	0.26	0.01
Feb	1.01	1.30	1.21	0.98	0.49	0.40	0.25	0.03	0.29	0.00
Mar	1.13	1.53	1.46	1.38	0.73	0.28	0.85	0.29	0.68	0.83
Apr	1.26	2.60	1.42	1.00	0.76	0.39	1.36	1.47	1.32	0.68
May	1.38	2.10	1.27	3.06	0.92	1.95	1.58	0.63	1.83	1.27
Jun	1.38	1.13	1.15	1.29	0.87	1.39	1.34	0.85	1.40	1.63
Jul	1.63	1.40	1.97	2.45	1.59	1.11	1.94	1.63	1.97	2.73
Aug	1.73	0.81	2.01	0.58	1.51	0.37	1.93	1.60	1.54	0.87
Sep	1.64	0.91	1.35	2.12	0.96	1.95	0.93	0.79	0.90	0.63
Total	16.15	13.37	16.75	20.91	9.85	9.76	12.02	8.74	11.75	10.74
Max. Annual	26.70	(1984)	25.95	(1957)	17.27	(1952)	20.32	(2007)	22.75	(1999)

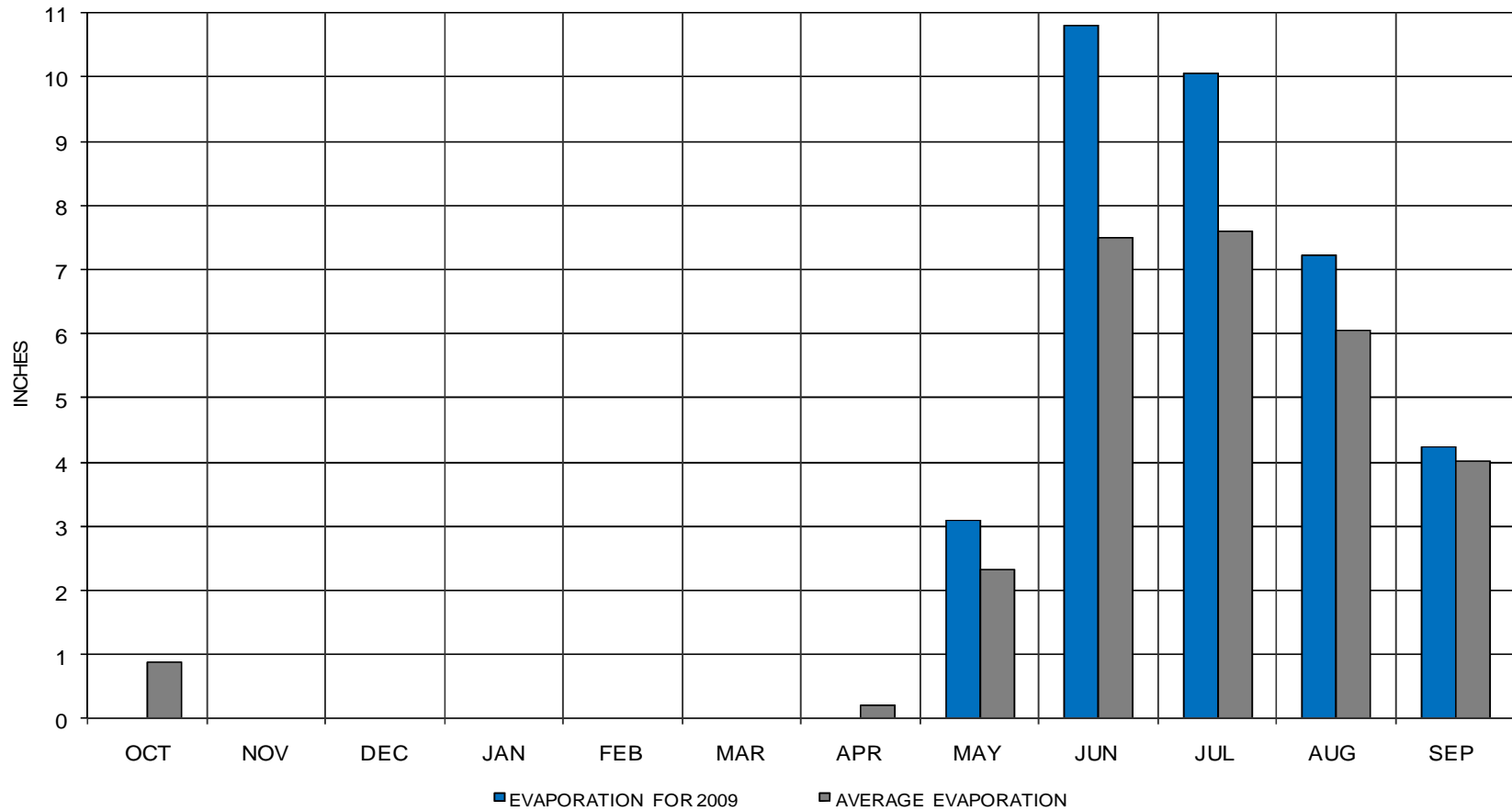
Table 13

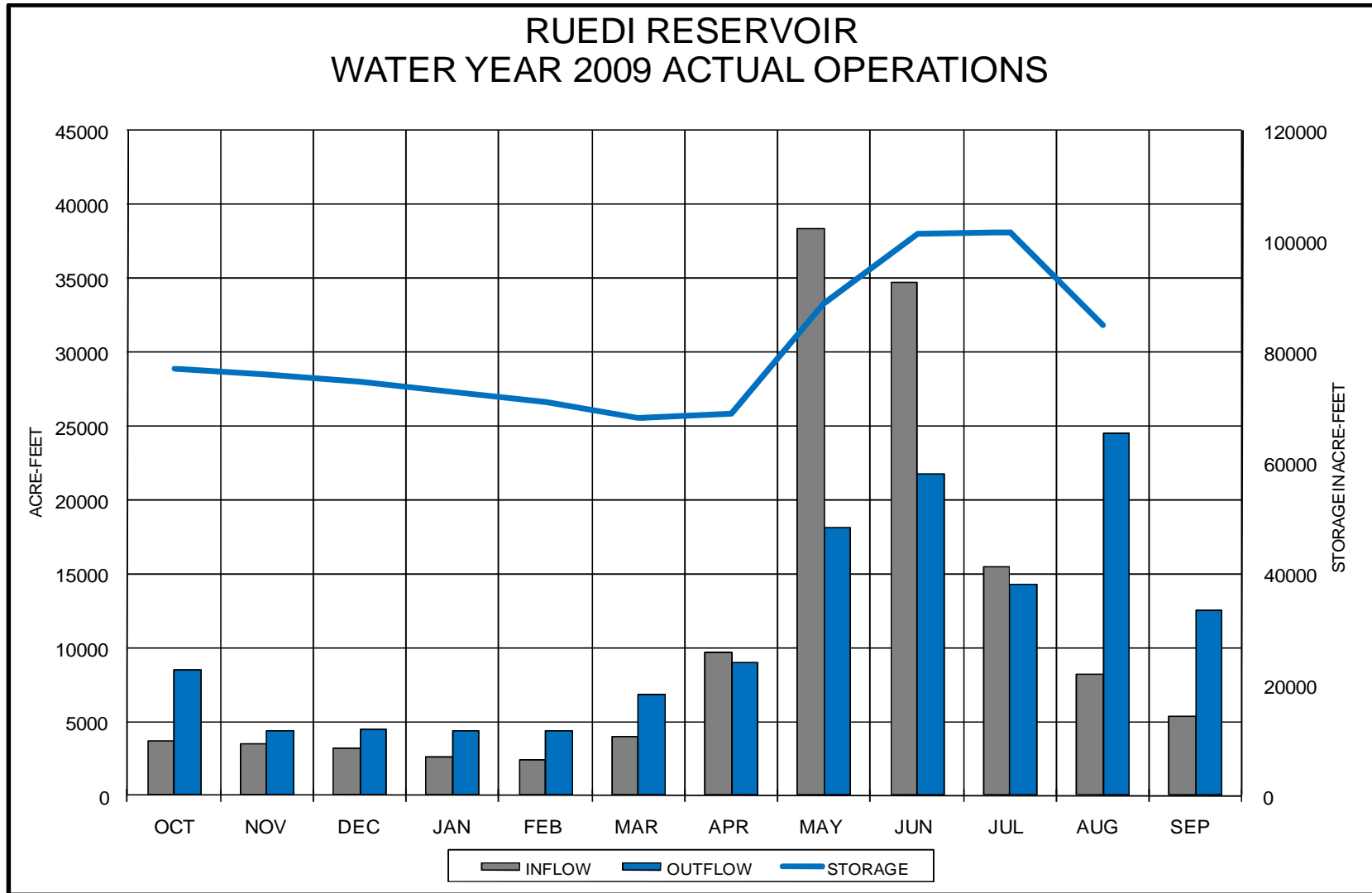
Fryingpan-Arkansas Project
Flood Control Benefits in Dollars

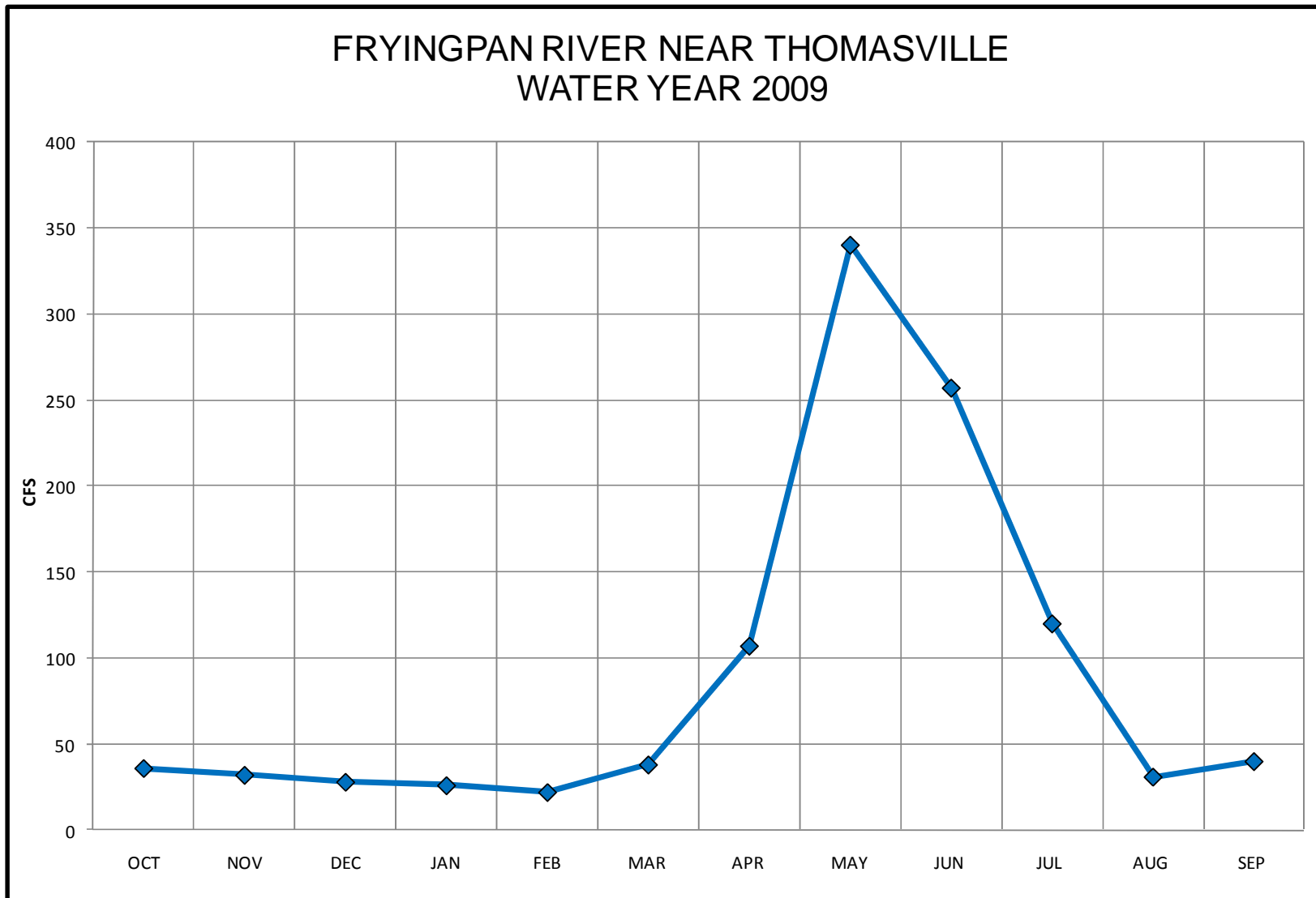
Accumulated	<u>Ruedi Reservoir</u>		<u>Pueblo Reservoir</u>	
	<u>Benefits</u>	<u>Benefits</u>	<u>Benefits</u>	<u>Benefits</u>
1976			320,000	320,000
1979			90,000	410,000
1980			86,000	496,000
1981			111,000	607,000
1982			836,000	1,443,000
1983	80,000	80,000	47,000	1,490,000
1984	330,000	410,000	1,039,000	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

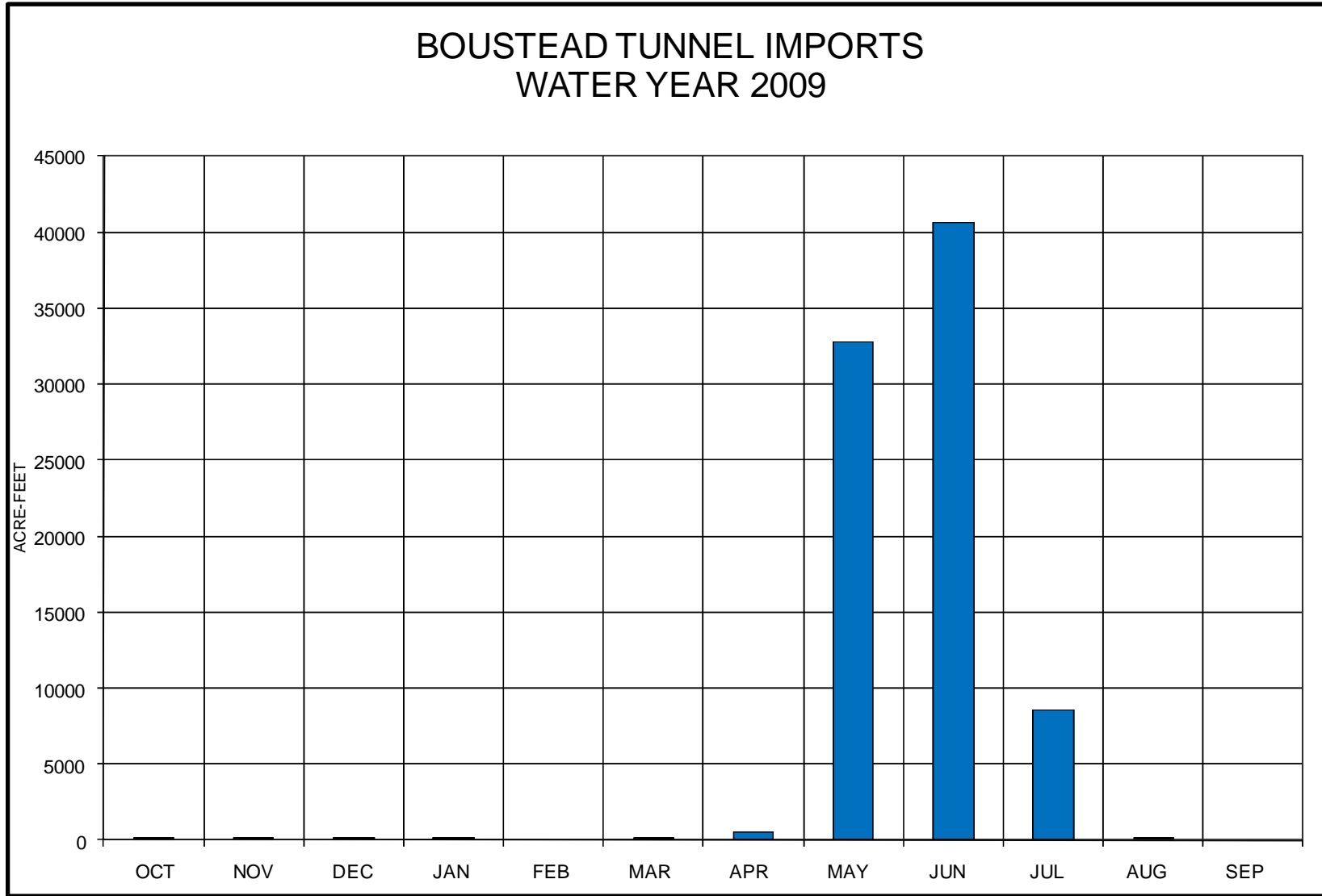


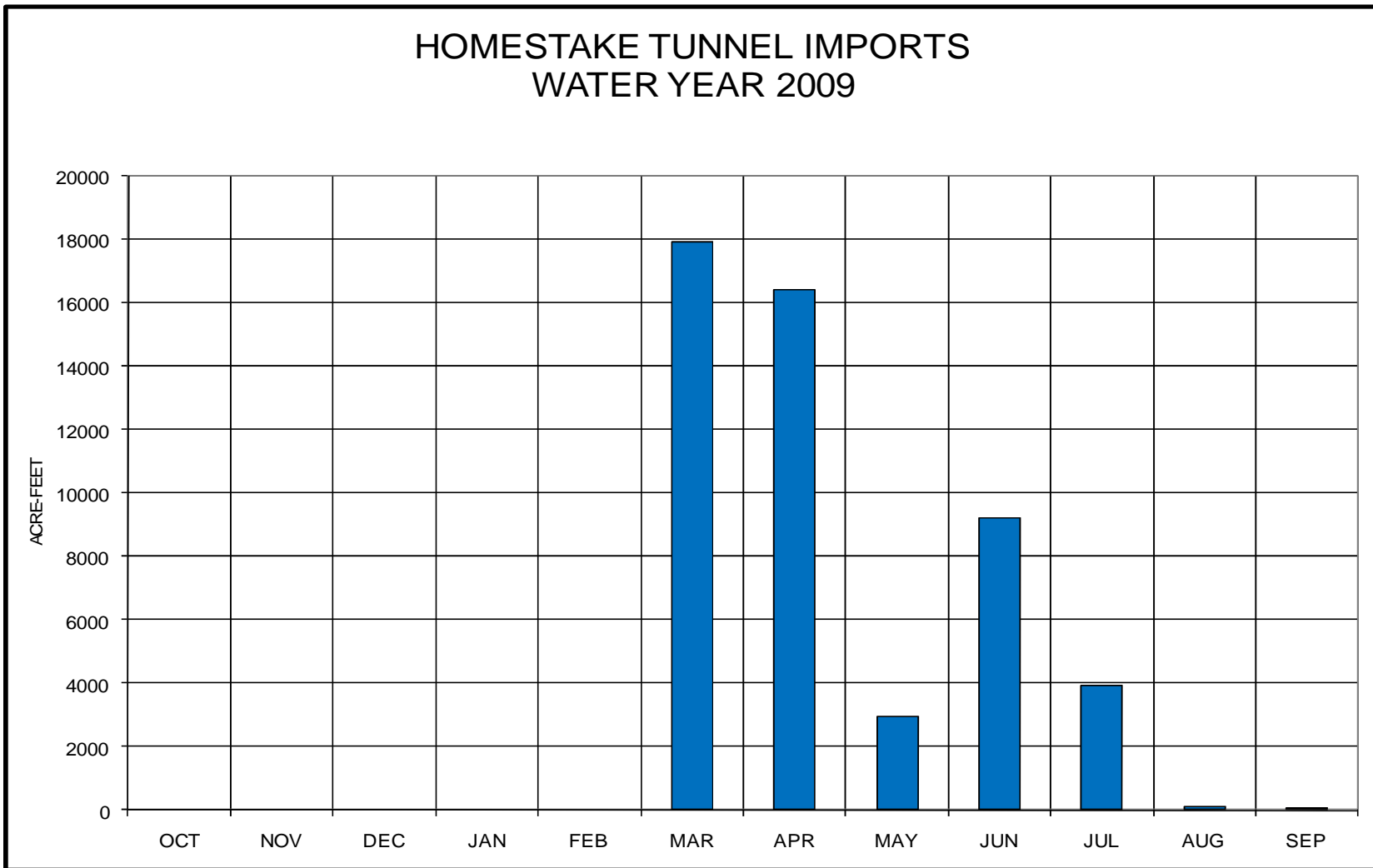
MONTHLY EVAPORATION AT MEREDITH, CO WATER YEAR 2009



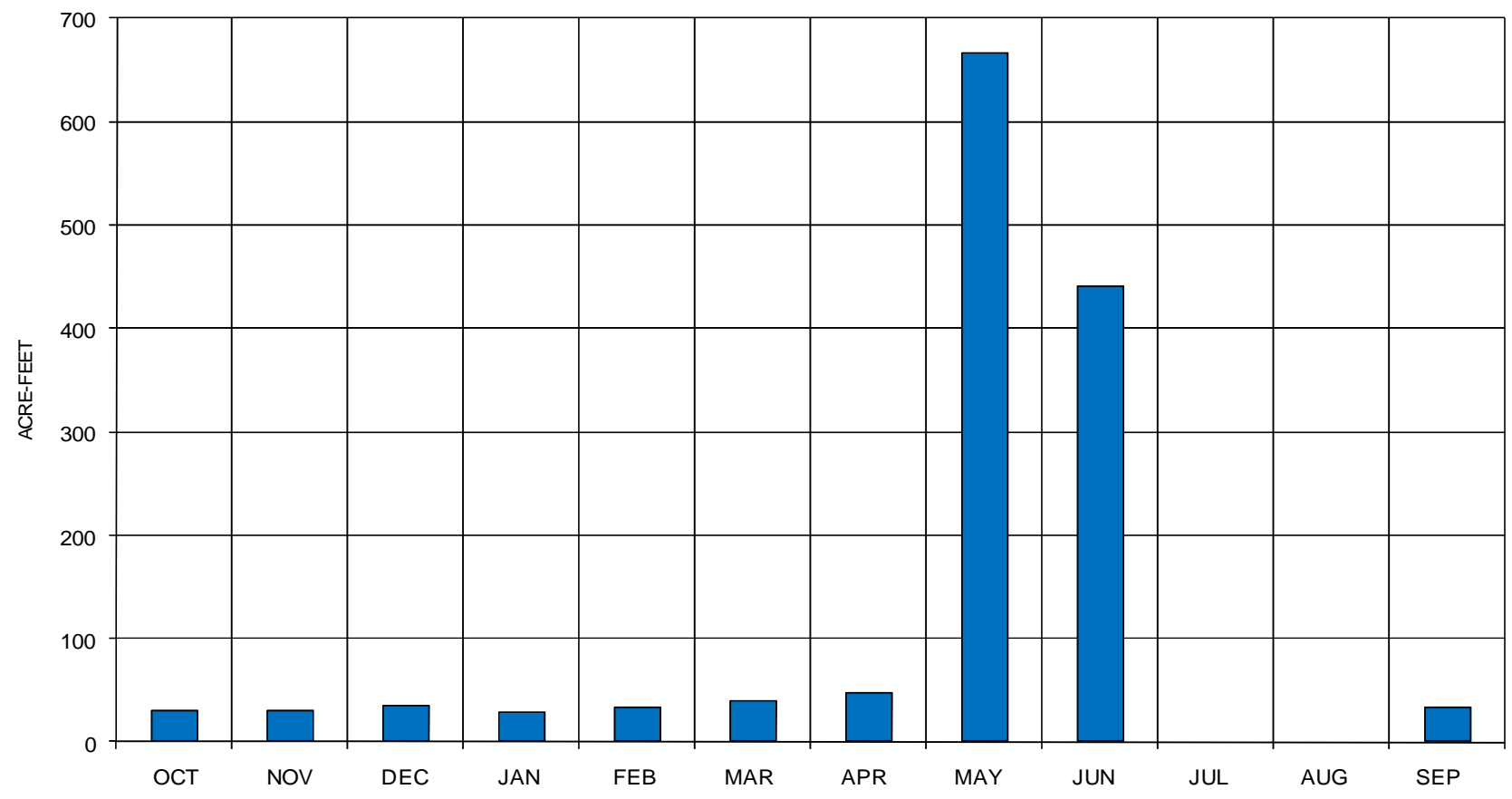


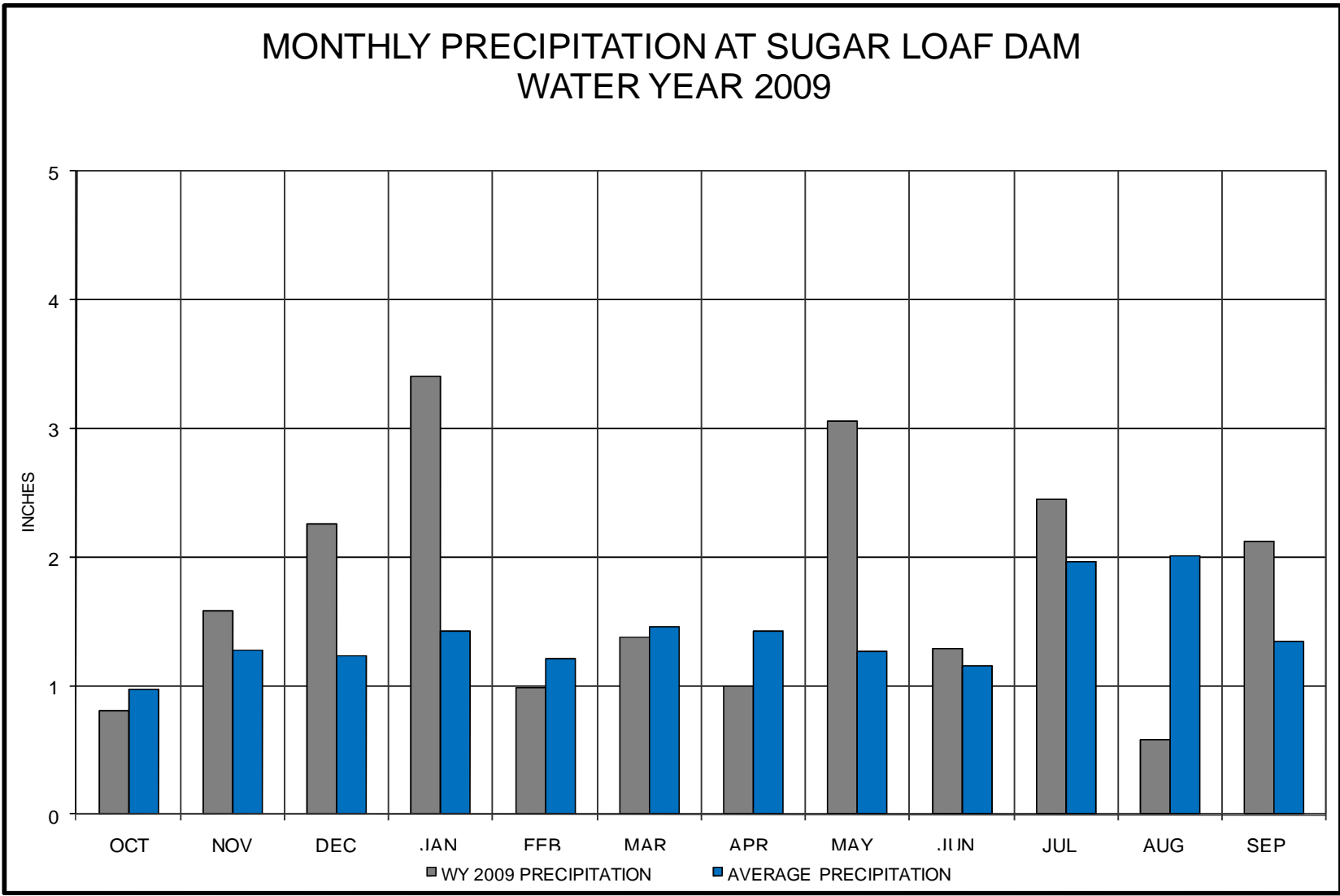




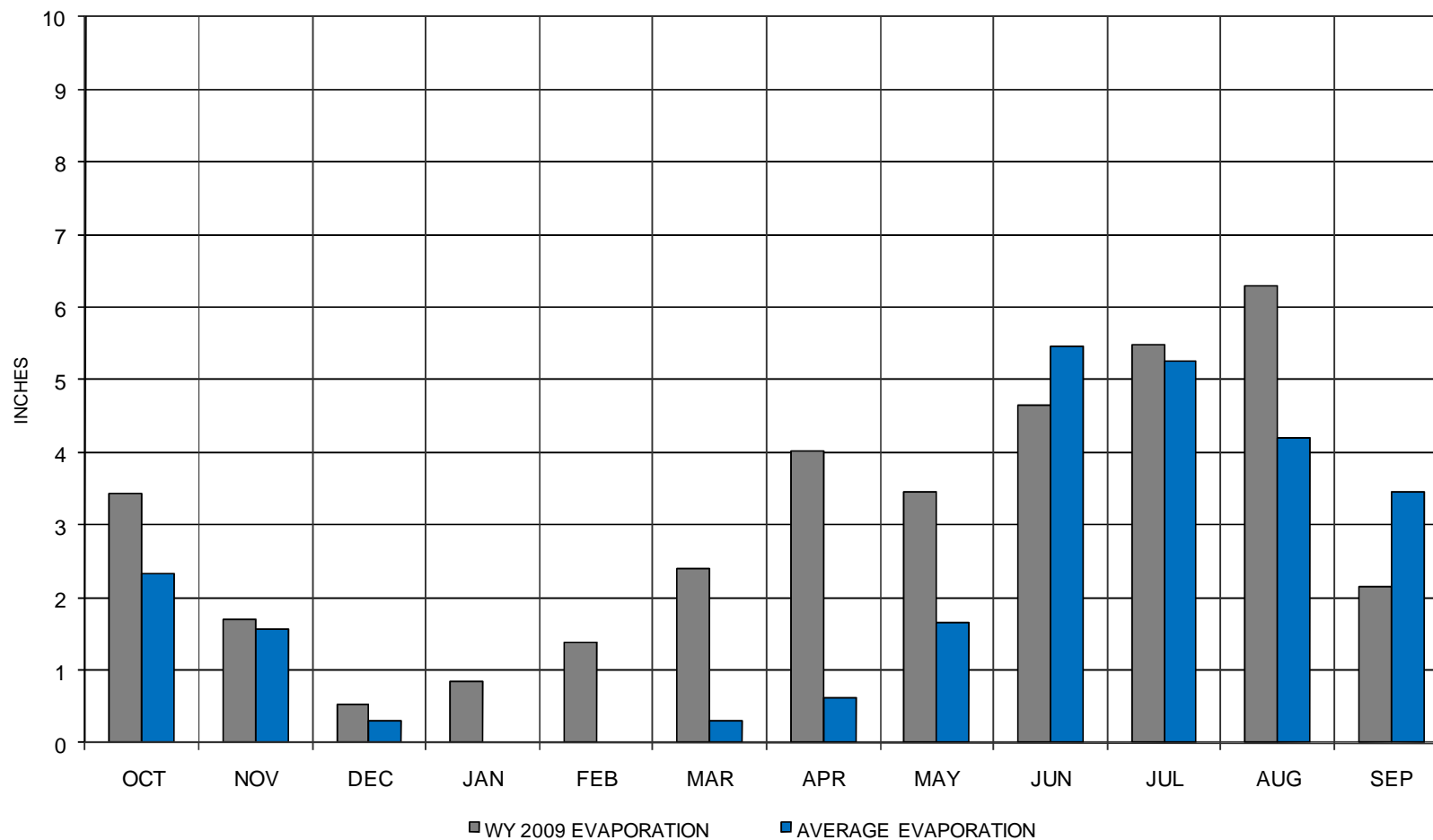


BUSK-IVANHOE TUNNEL IMPORTS WATER YEAR 2009

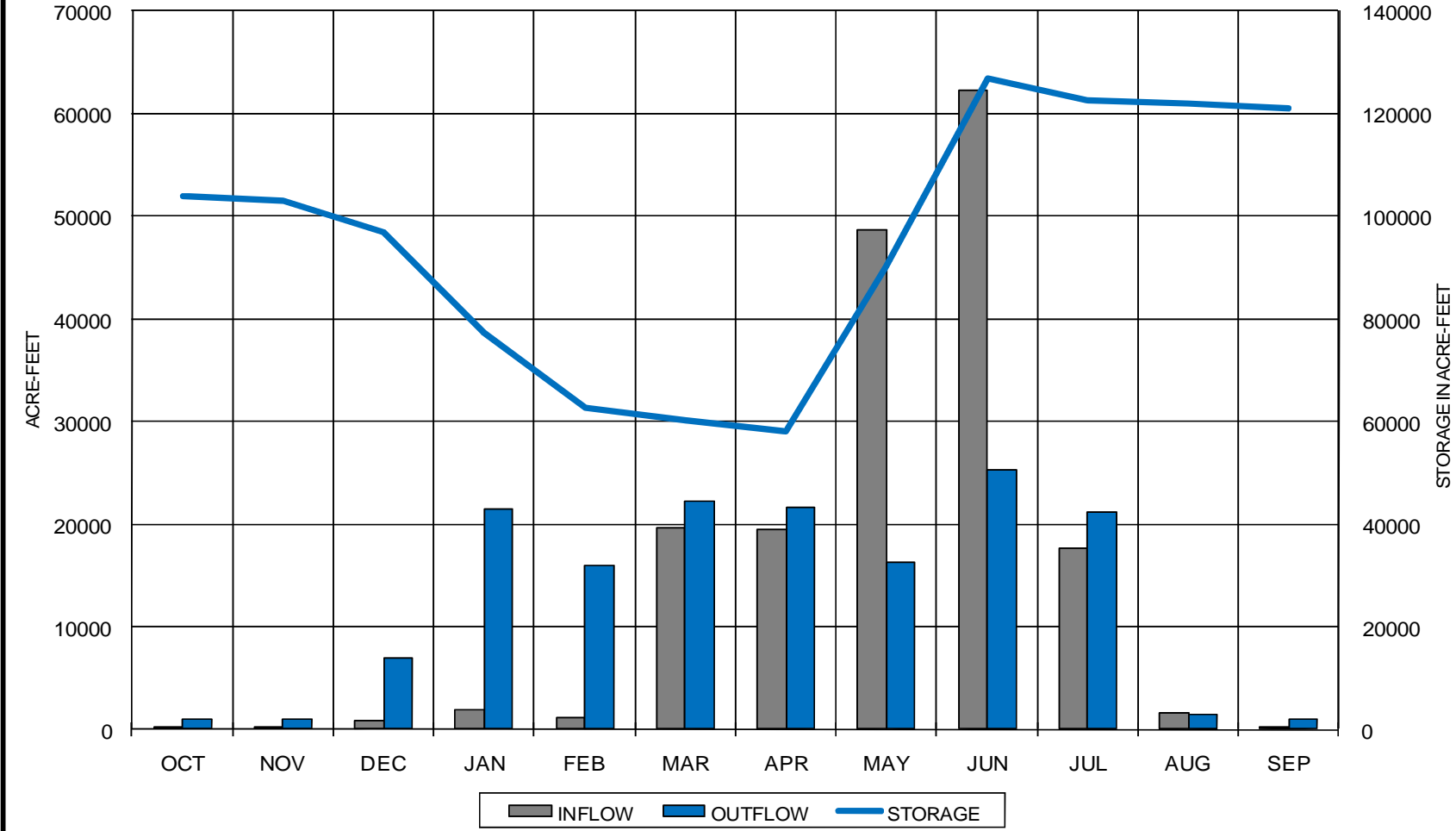


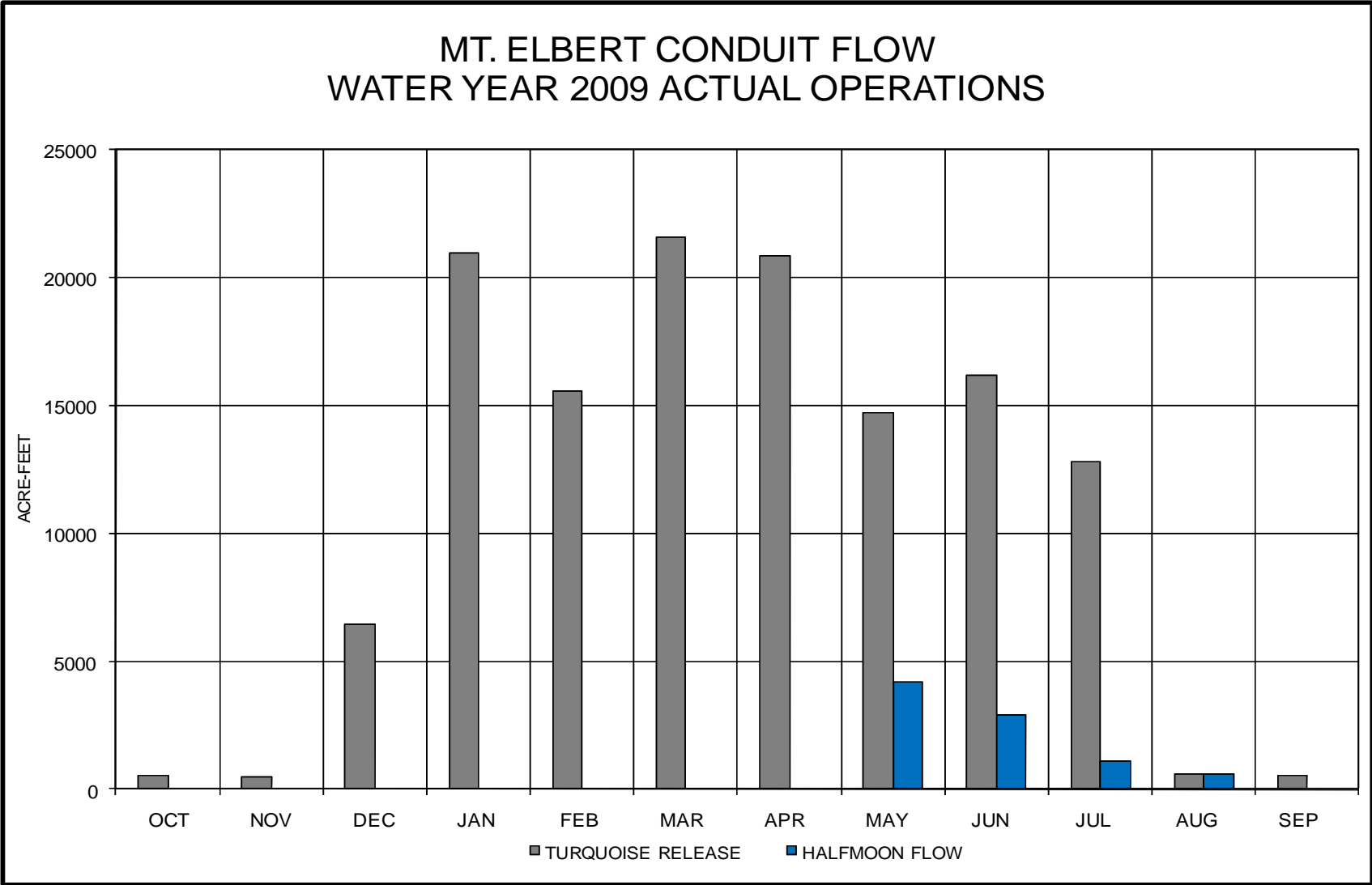


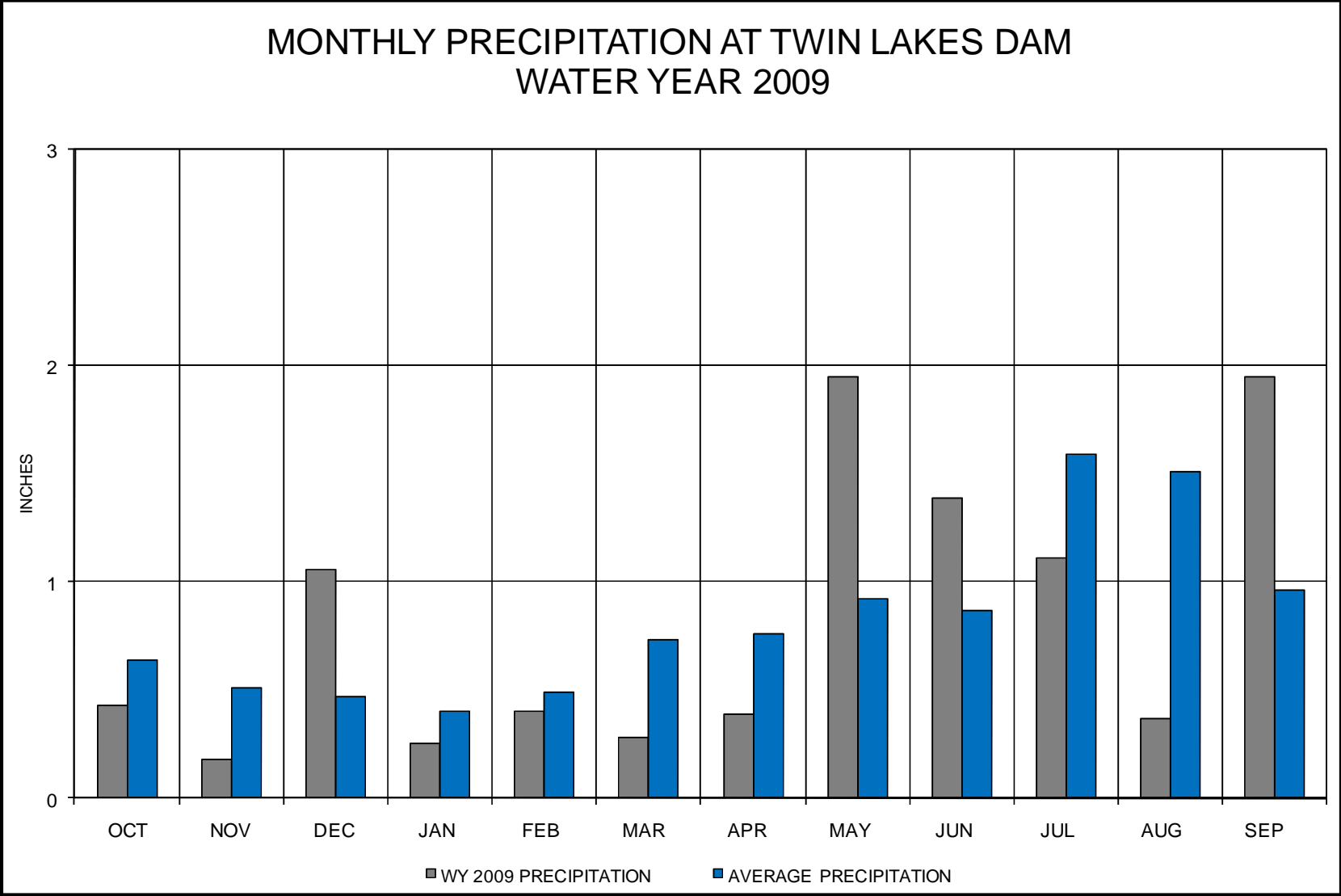
MONTHLY EVAPORATION AT SUGARLOAF DAM WATER YEAR 2009

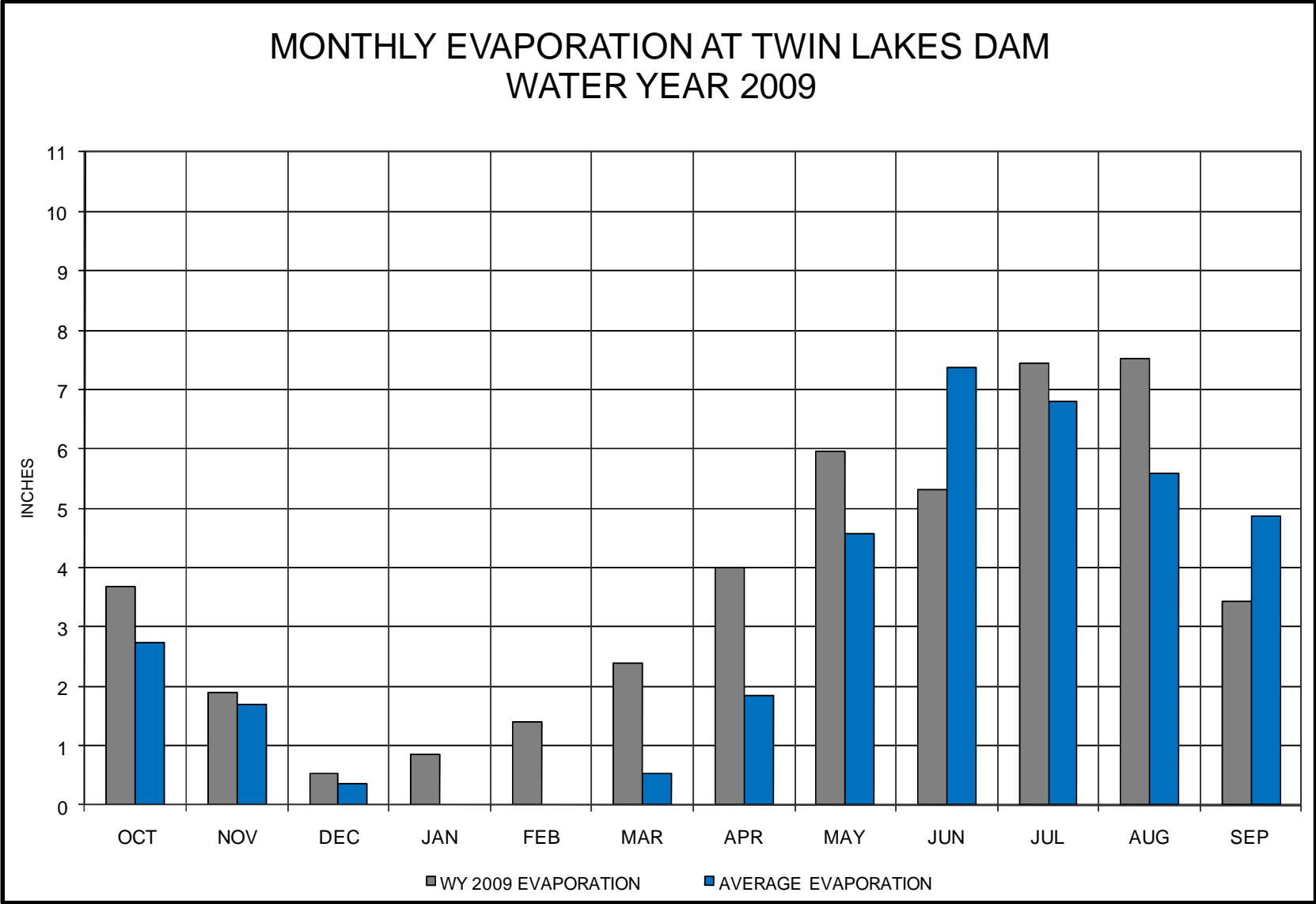


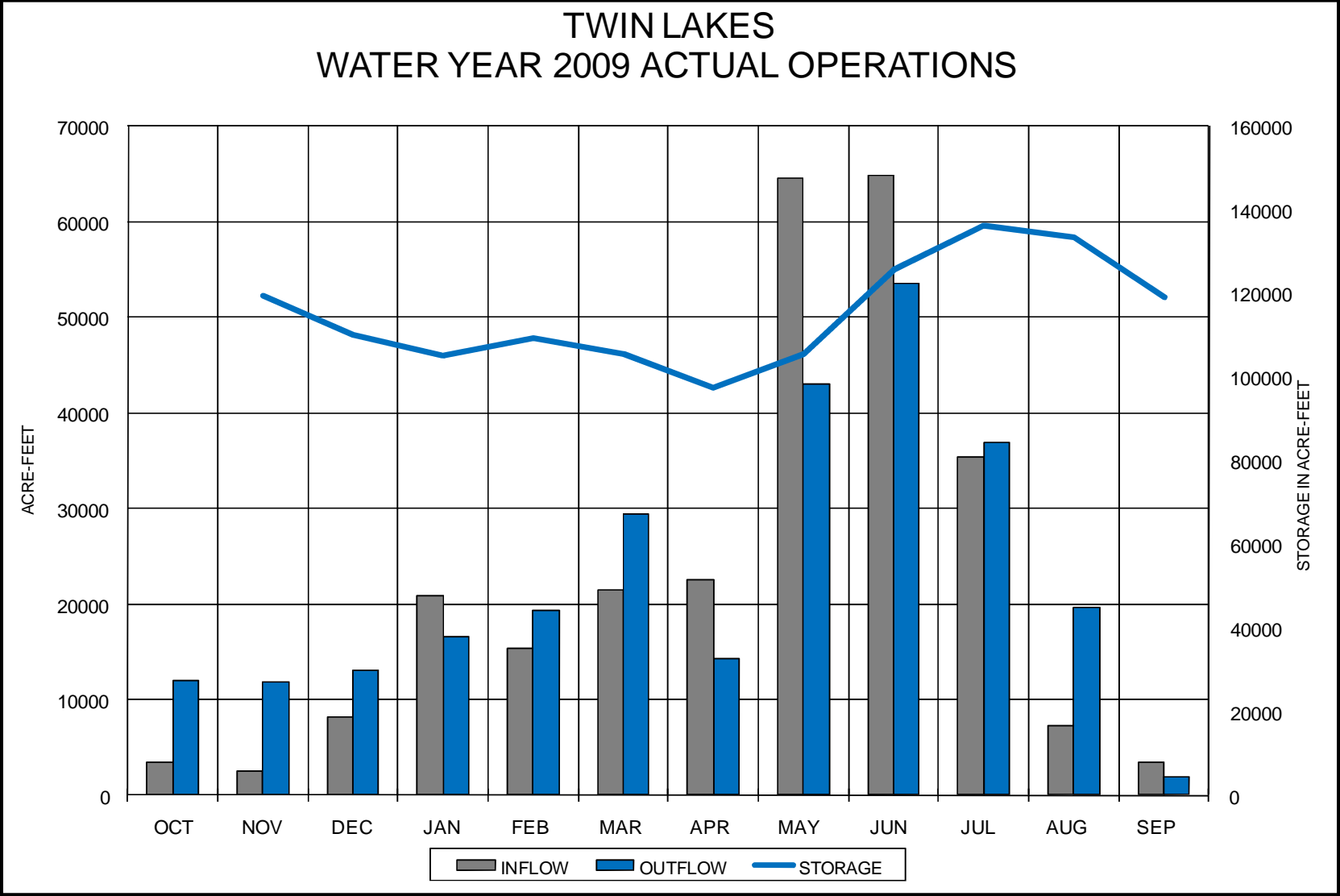
TURQUOISE LAKE WATER YEAR 2009 ACTUAL OPERATIONS



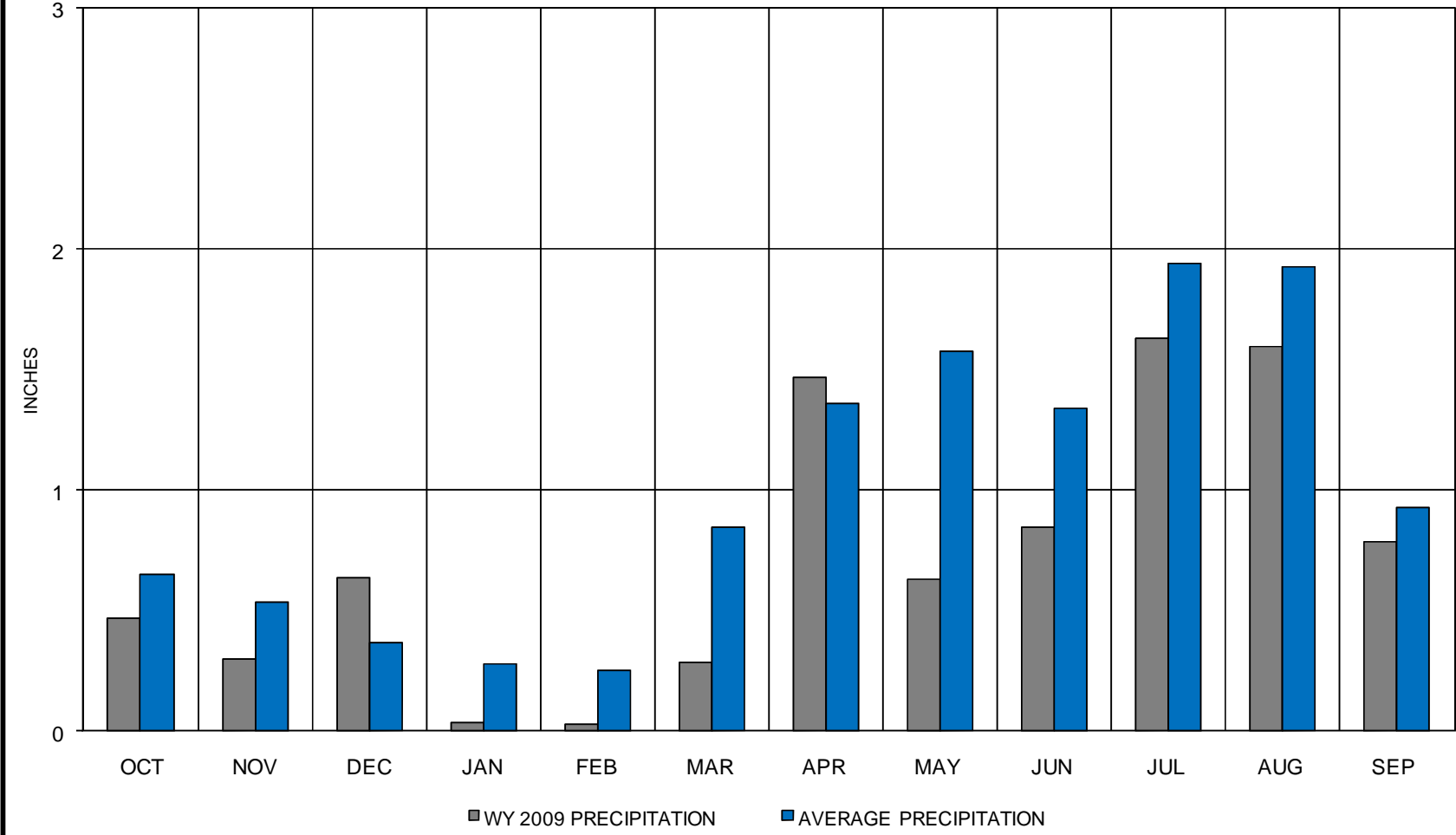


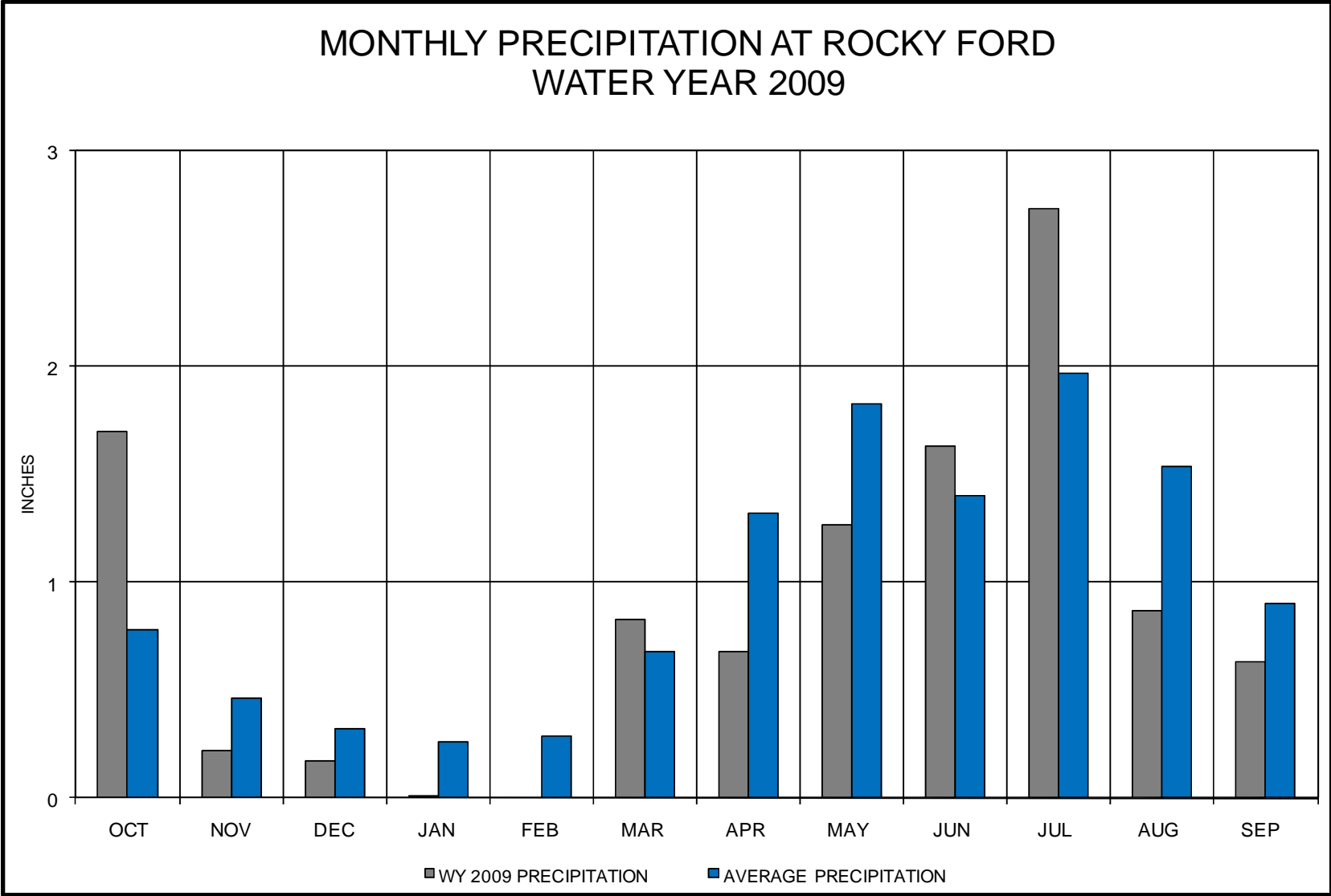


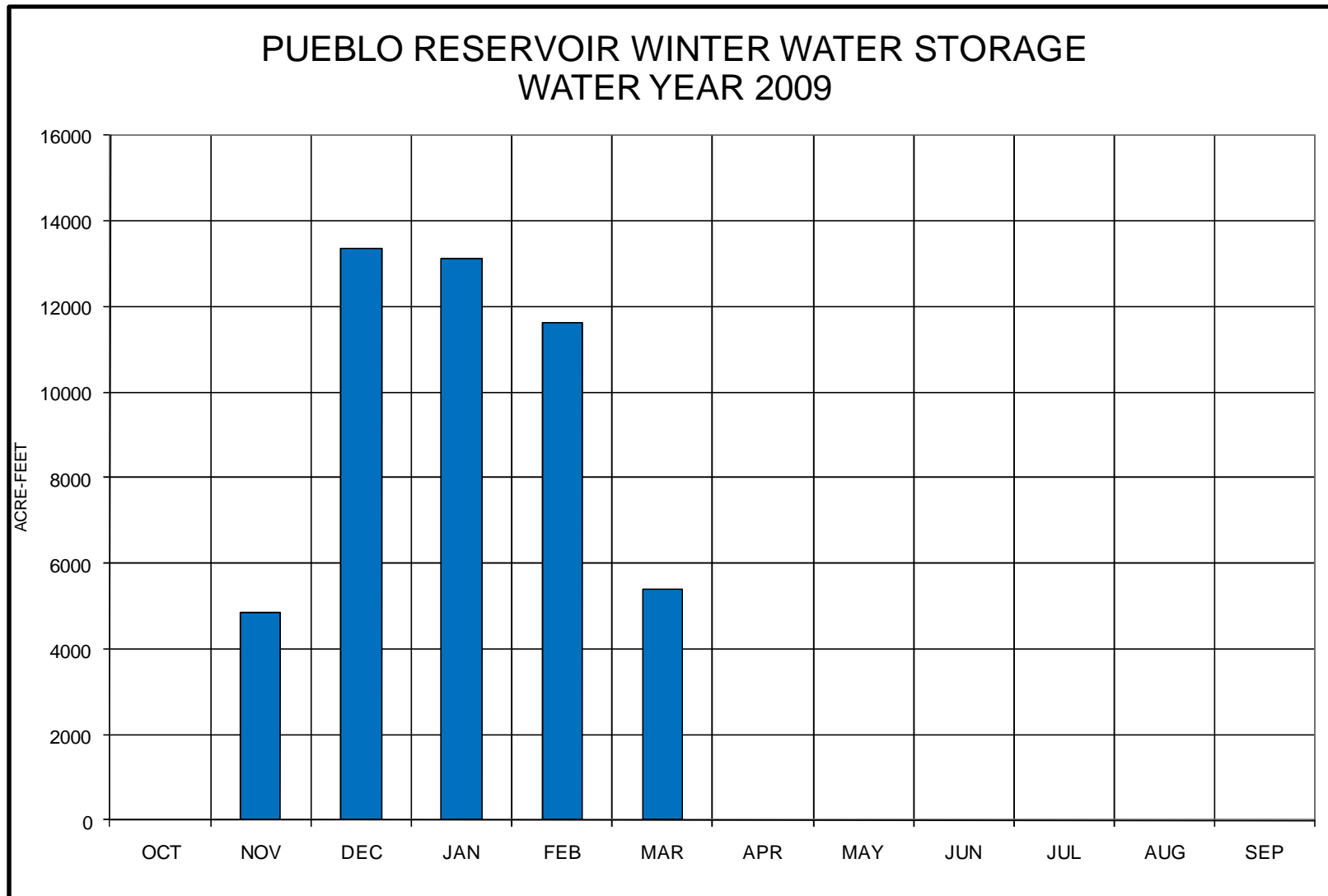


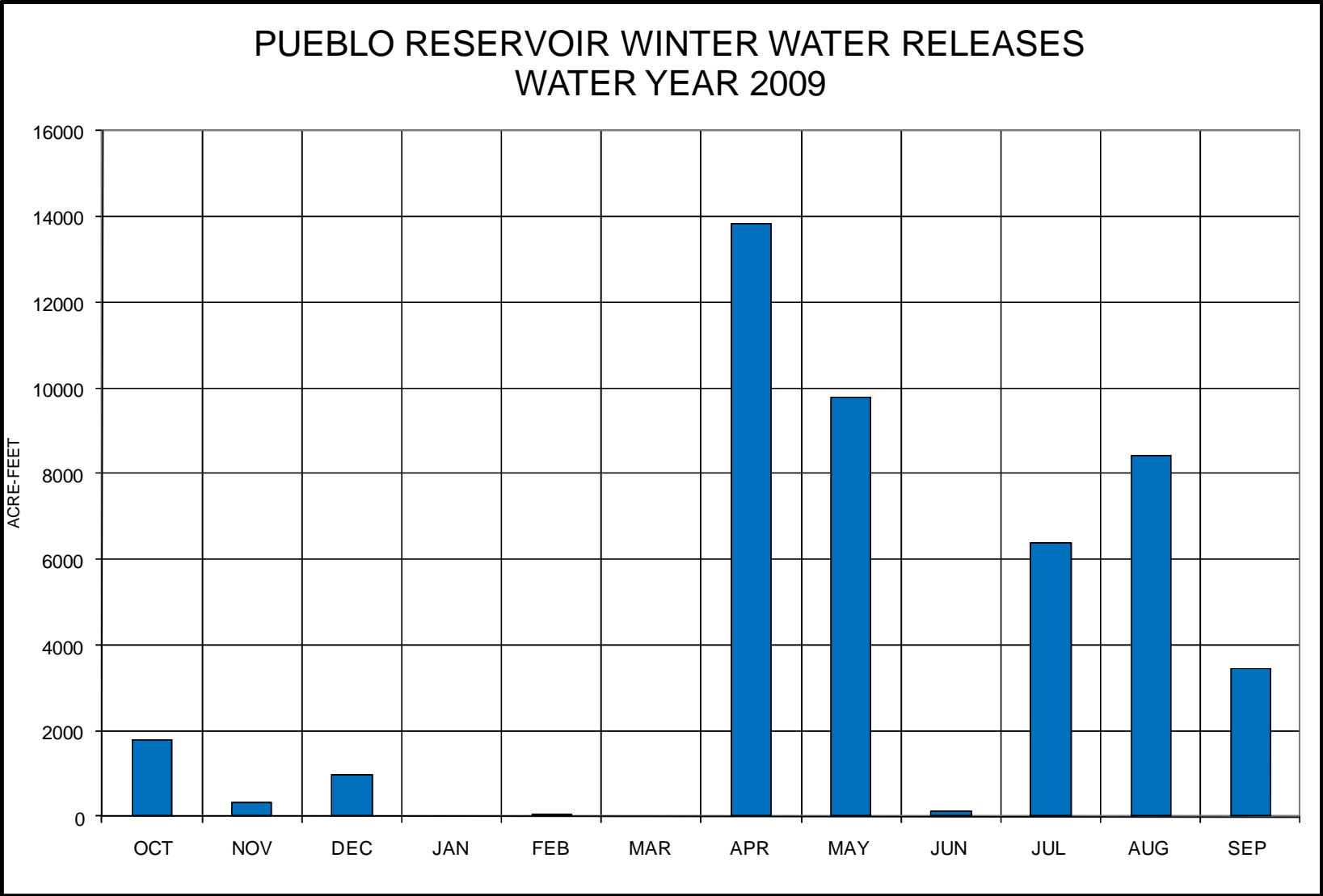


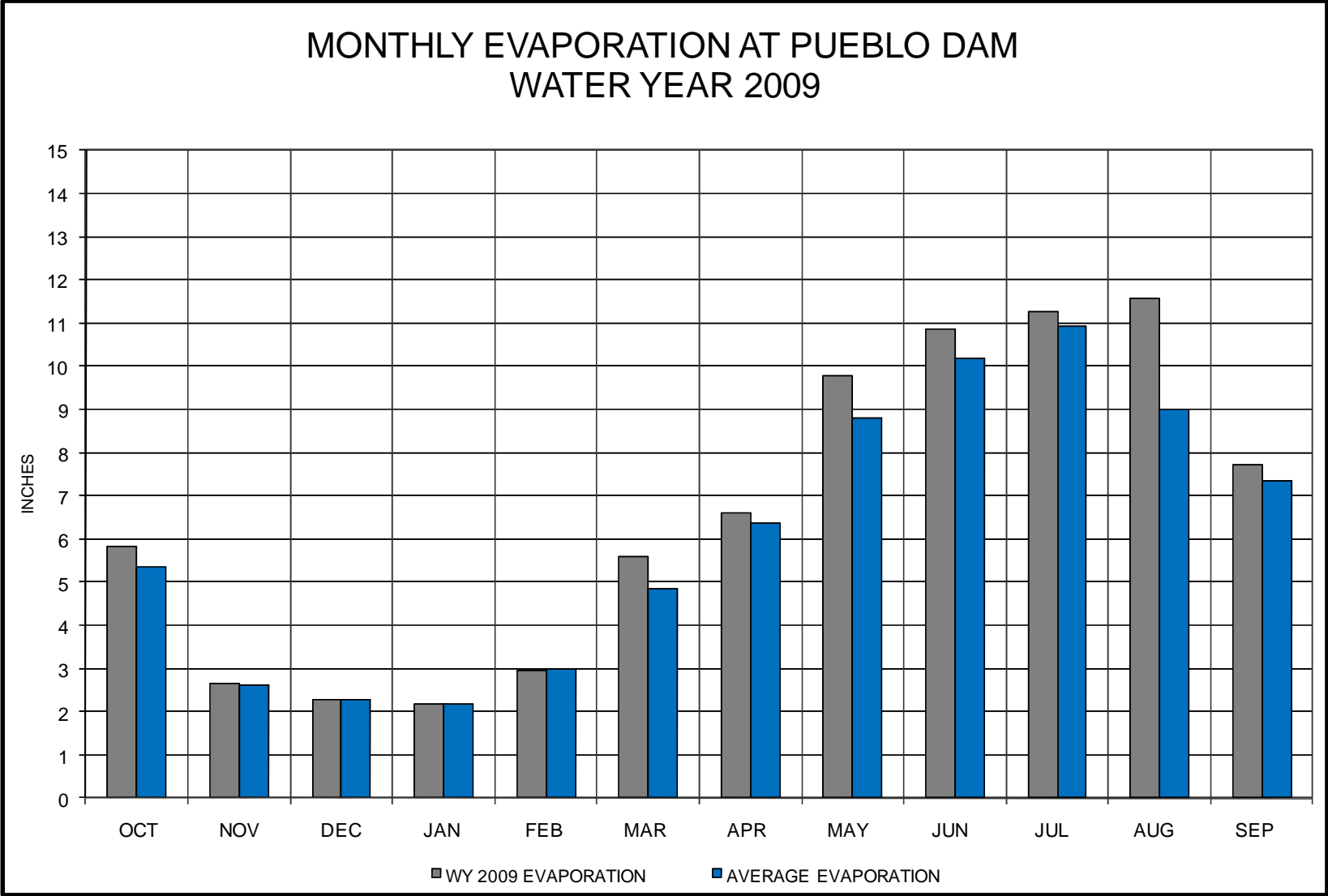
MONTHLY PRECIPITATION AT PUEBLO RESERVOIR WATER YEAR 2009



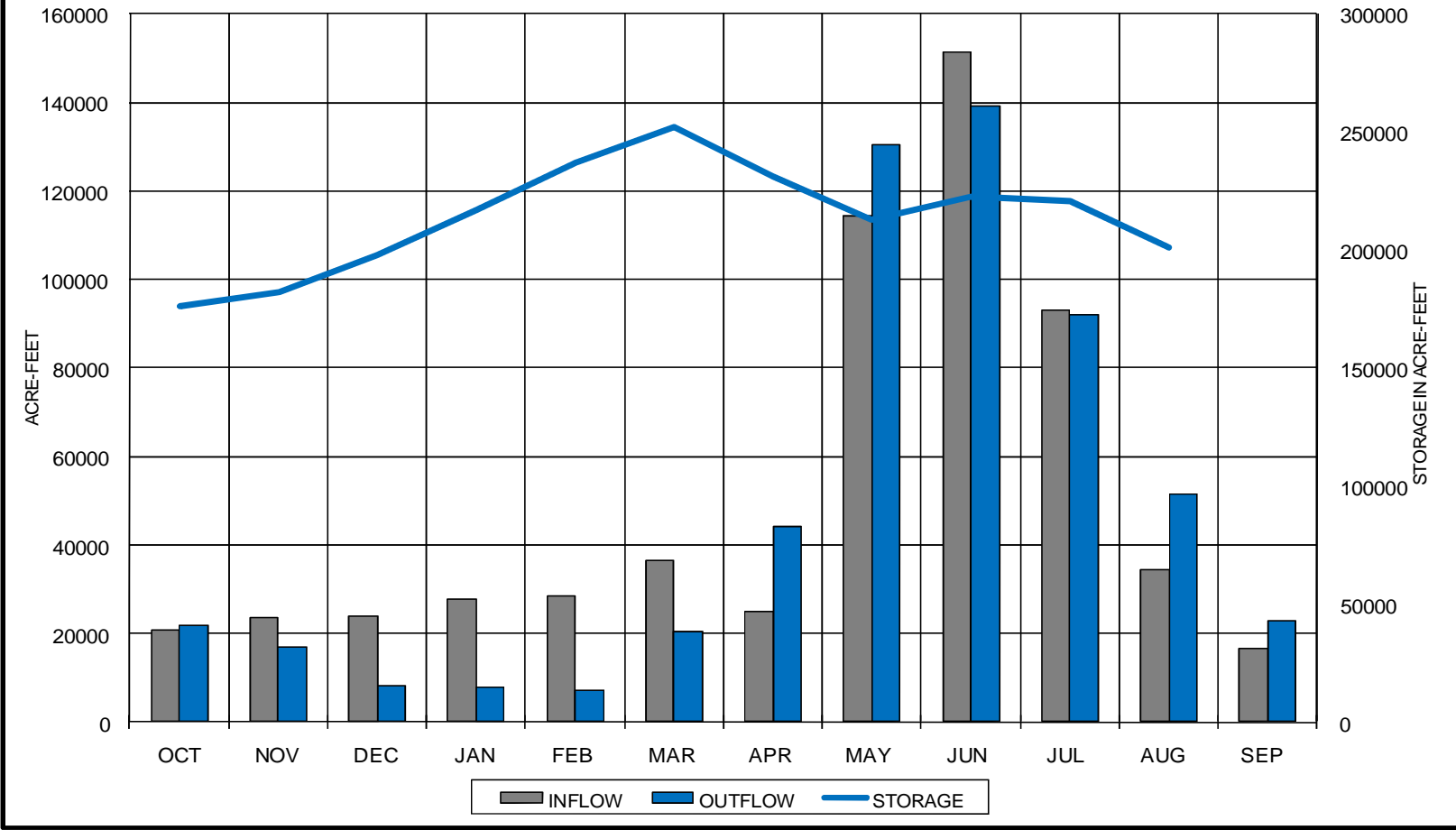


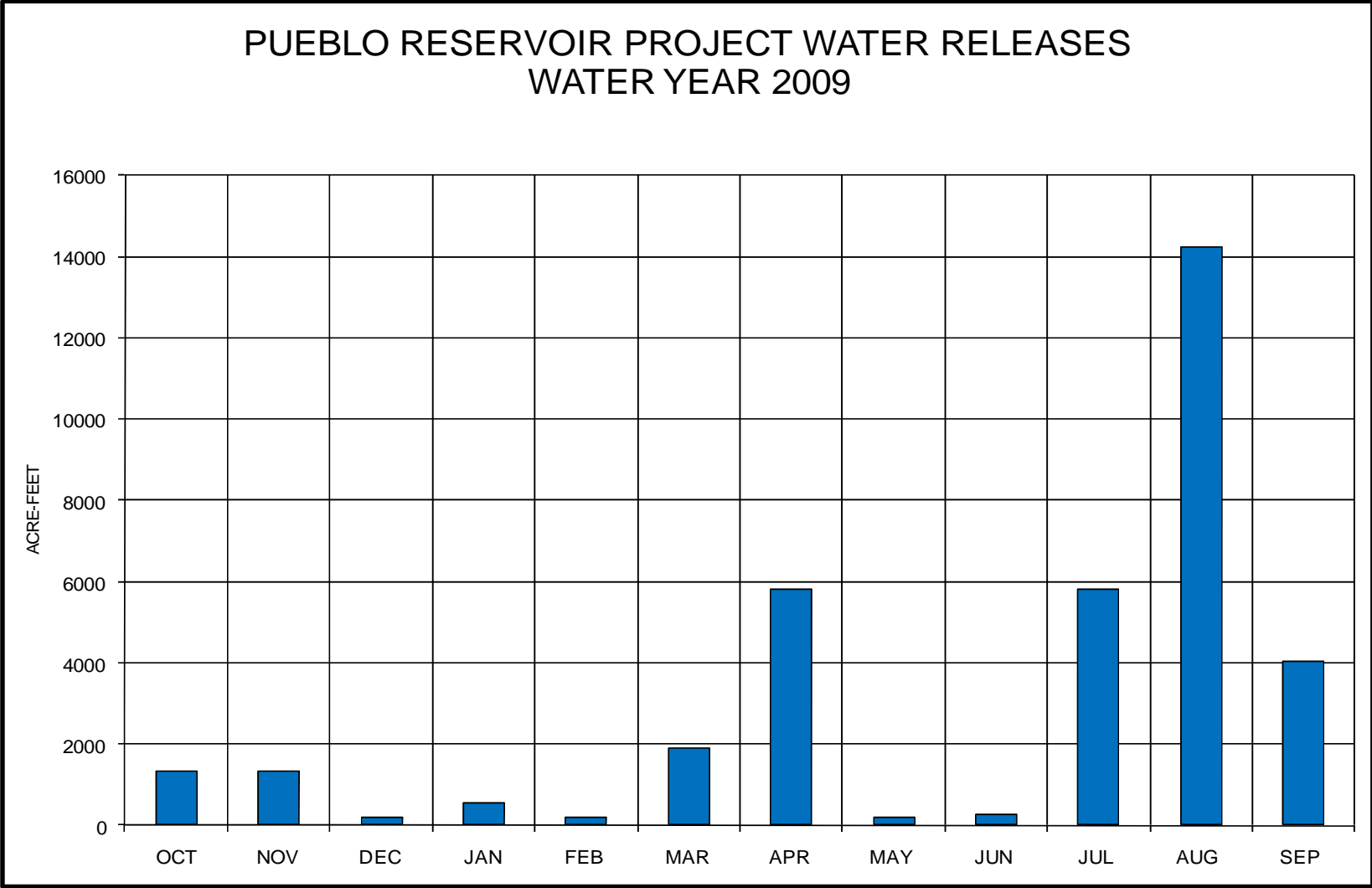






PUEBLO RESERVOIR WATER YEAR 2009 ACTUAL OPERATIONS





Twin Lakes Reservoir and Canal Company Exchange
with Fryingpan-Arkansas Project Water
2008-2009
Units = Acre-Feet

	Lincoln Creek below Grizzly Reservoir (1)	Roaring Fork River above Lost Man Creek (2)	Total (1 + 2) (3)	Twin Lakes Storage (3) x 0.9913 ⁹ (4)
October	146	0	146	145
November	170	0	170	169
December	174	0	174	172
January	177	0	177	176
February	162	0	162	161
March	182	0	182	180
April	173	0	173	171
May	171	0	171	169
June	215	206	421	417
July	225	235	460	456
August	223	179	402	399
September	221	138	359	356
Total	2,239	758	2,997	2,971

⁹ .87% transit loss from the outlet of Twin Lakes Tunnel to Twin Lakes normally taken on all Twin Lakes Reservoir and Canal Company imported water.

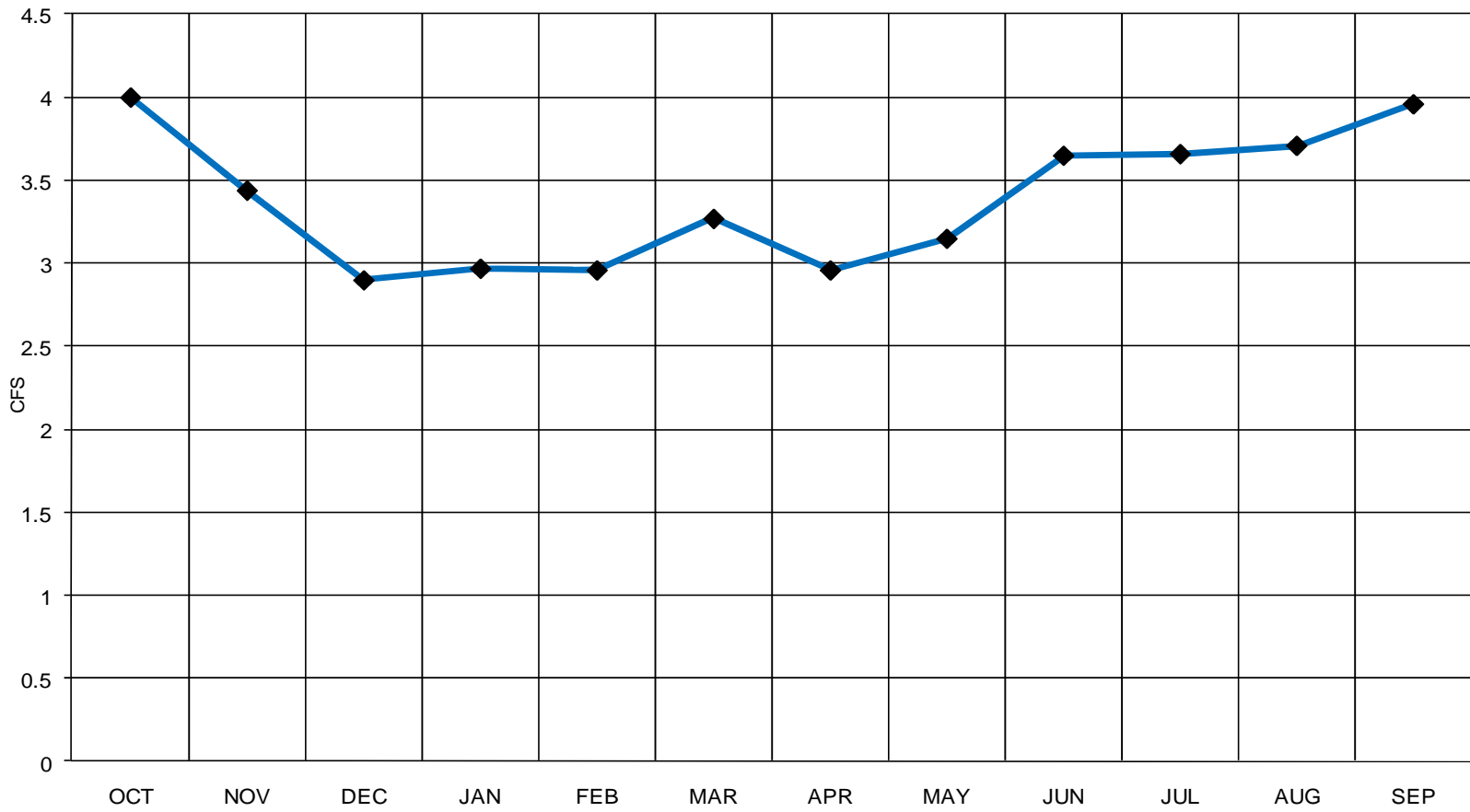
OPERATING CRITERIA

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 follows:

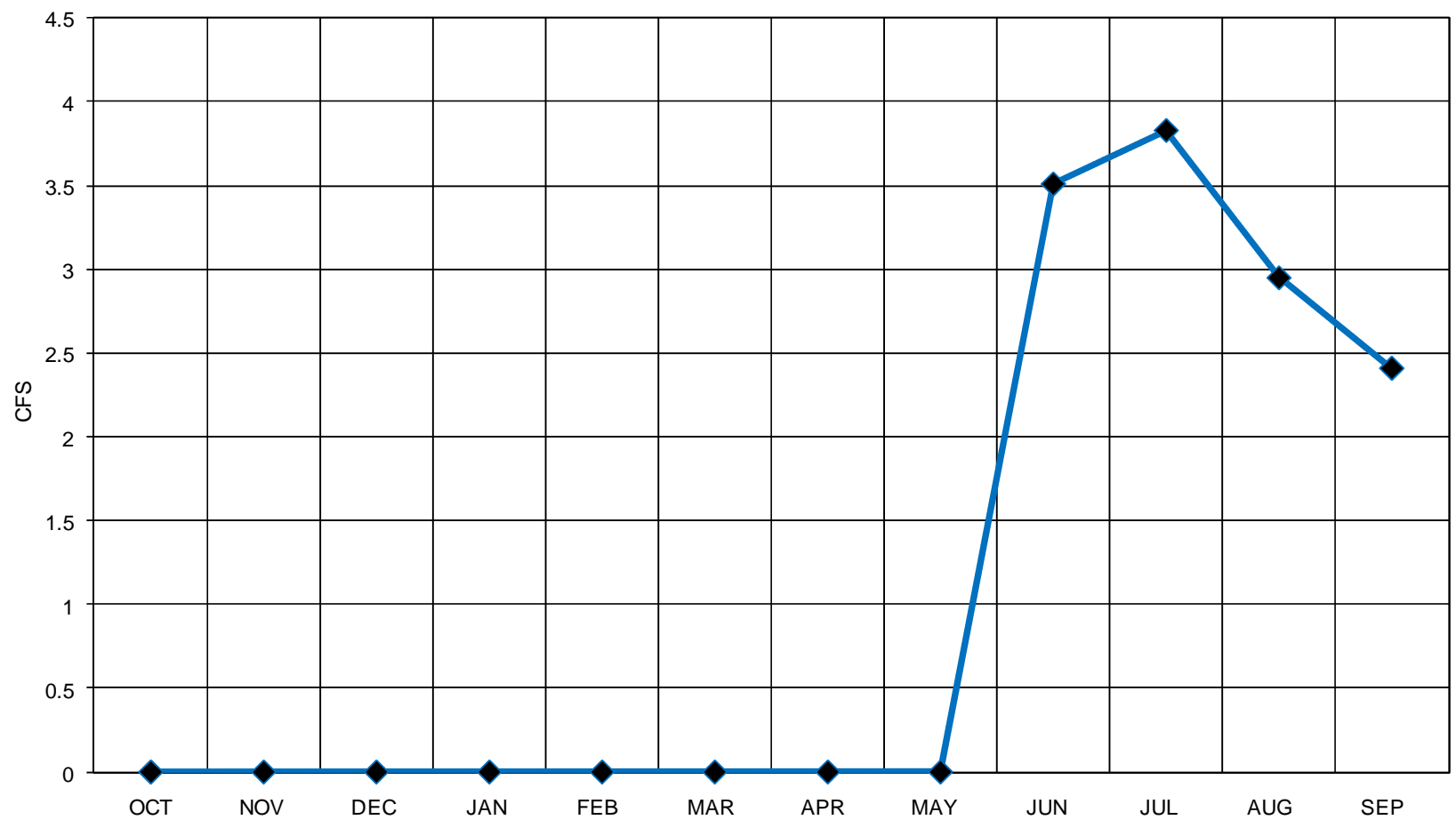
<u>Month</u> <u>Diversion(ft³/s)</u>	<u>Grizzly Diversion(ft³/s)</u>	<u>Roaring Fork</u>
October	3.0	0.0
November	3.0	0.0
December	3.0	0.0
January	3.0	0.0
February	3.0	0.0
March	3.0	0.0
April	3.0	0.0
May	3.0	0.0
June	4.0	4.0
July	4.0	4.0
August	4.0	3.0
September	4.0	3.0

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.

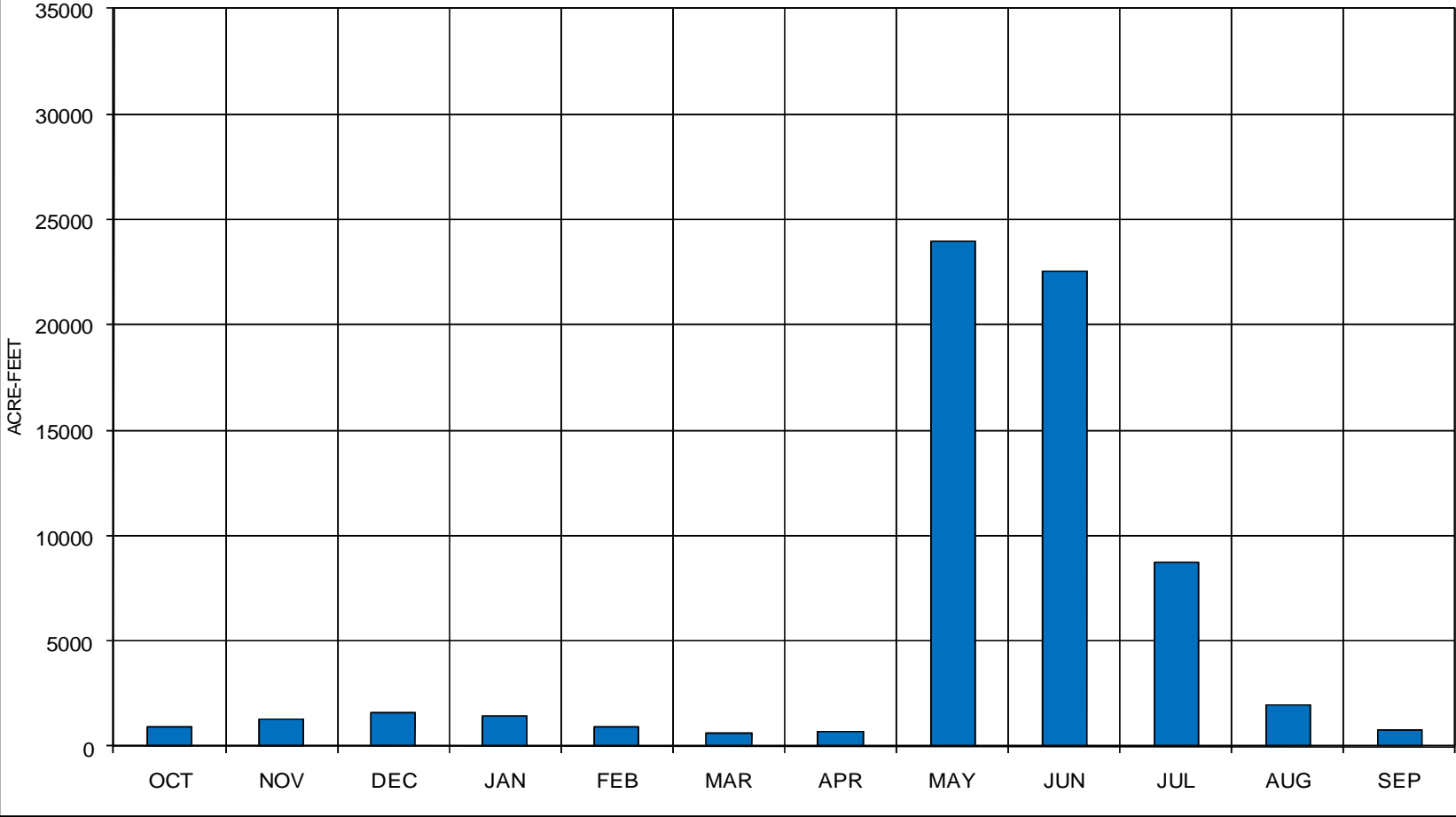
LINCOLN CREEK BELOW GRIZZLY RESERVOIR WATER YEAR 2009



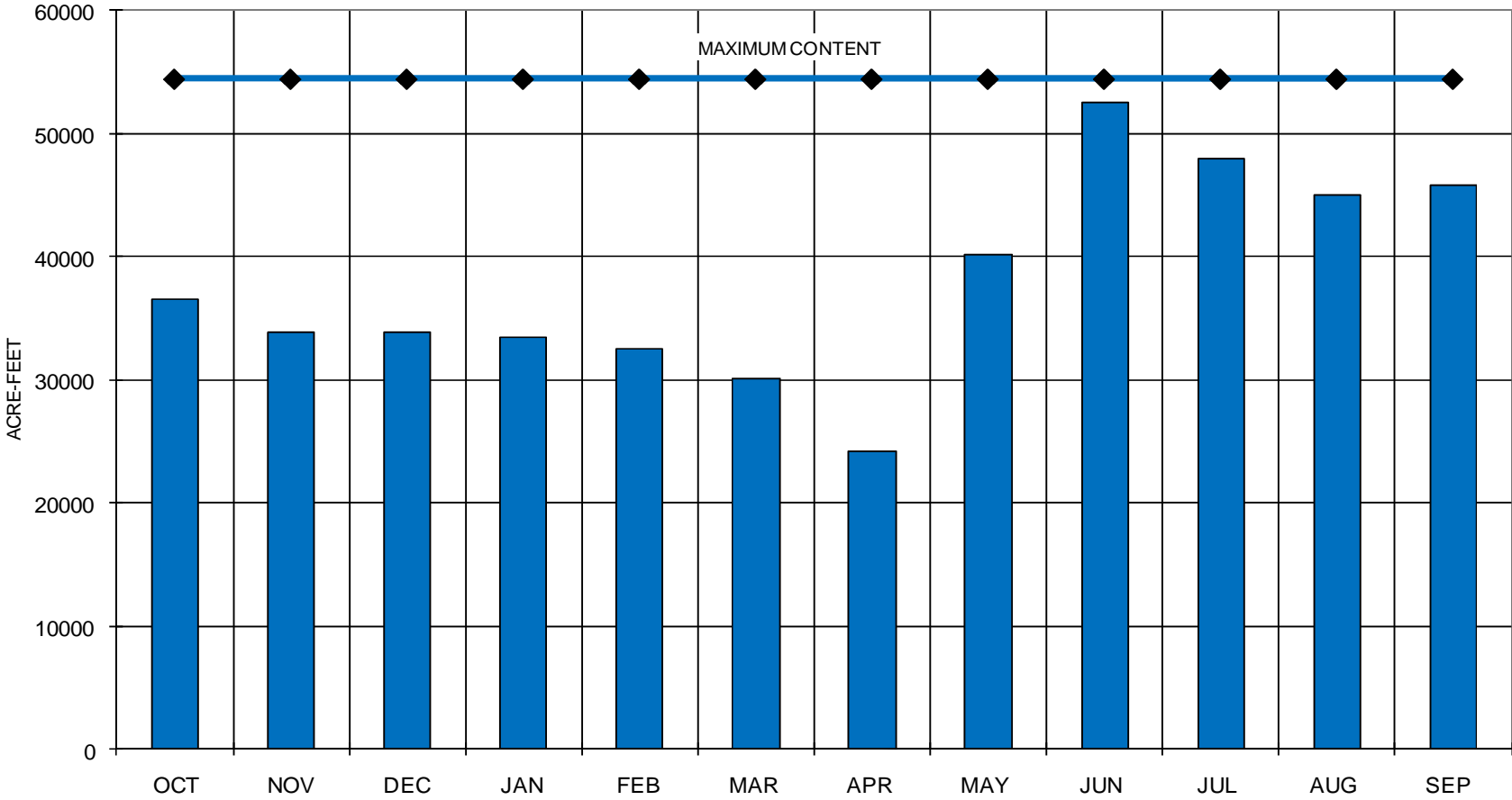
ROARING FORK ABOVE LOST MAN WATER YEAR 2009



TWIN LAKES TUNNEL IMPORTS WATER YEAR 2009



TWIN LAKES CANAL COMPANY STORAGE WATER YEAR 2009



Appendix D (1 of 15)
Carter Creek Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1		10	44	40		
2		8	35	37		
3		8	37	42		
4		6	34	36		
5		3	29	32		
6		4	29	31		
7		13	27	29		
8		19	20	30		
9		18	20	28		
10		16	19	26		
11		19	19	25		
12		17	19	23		
13		9	21	22		
14		22	26	21		
15		24	27	21		
16		32	30	16		
17		41	36	16		
18		49	23	16		
19		48	27	13		
20		43	50	8		
21		39	51	9		
22	2	43	51	4		
23	6	42	48			
24	10	46	42			
25	8	38	48			
26	7	29	32			
27	4	25	55			
28	3	27	48			
29	4	33	42			
30	8	42	41			
31		43				
Total	52	816	1,030	525		
Mean	6	26	34	24		
Max	10	49	55	42		
Min	2	3	19	4		
Acre-Feet	103	1619	2043	1041		

Water year total: 4,806 acre-feet

Maximum instantaneous peak: 65 cubic feet per second – June 27

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (2 of 15)
North Fork Fryingpan River Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1			10	6		
2			9	6		
3			9	5		
4			9	6		
5			8	5		
6			8	5		
7			8	4		
8			6	3		
9			6	2		
10			6	1		
11			6	1		
12		4	6	1		
13		6	9	1		
14		6	9	1		
15		6	7	1		
16		8	6	1		
17		9	6			
18		10	7			
19		11	10			
20		11	10			
21		11	9			
22		10	9			
23		11	9			
24		11	9			
25		10	9			
26		8	9			
27		7	10			
28		7	10			
29		8	9			
30		10	6			
31		10				
Total		174	244	49		
Mean		9	8	3		
Max		11	10	6		
Min		4	6	1		
Acre-Feet		345	484	97		

Water year total: 926 acre-feet

Maximum instantaneous peak: 12 cubic feet per second – May 19

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (3 of 15)
Mormon Creek Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1		5	43	29		
2		6	36	28		
3		6	36	29		
4		5	38	24		
5		2	37	20		
6		3	38	18		
7		10	32	16		
8		16	26	13		
9		16	27	12		
10		14	26	10		
11		17	26	10		
12		23	26	9		
13		26	35	8		
14		25	36	7		
15		28	34	6		
16		35	37	5		
17		42	40	4		
18		47	37	3		
19		43	45	3		
20		49	51	3		
21		44	50	1		
22		43	48			
23		47	45			
24		51	46			
25		39	49			
26		31	43			
27		28	56			
28		28	40			
29		35	34			
30	4	42	31			
31		48				
Total	4	854	1148	258		
Mean	4	28	38	12		
Max	4	51	56	29		
Min	4	5	26	1		
Acre-Feet	8	1694	2277	512		

Water year total: 4,491 acre-feet

Maximum instantaneous peak: 81 cubic feet per second – June 27

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (4 of 15)
North Cunningham Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1		6	25	15		
2		6	21	14		
3		5	23	14		
4		5	25	11		
5		3	23	9		
6		3	23	7		
7		8	20	6		
8		13	17	5		
9		13	18	4		
10		11	17	4		
11		12	17	3		
12		17	16	3		
13		18	22	3		
14		18	22	3		
15		20	21	2		
16		22	22	1		
17		25	25	1		
18		26	21			
19		28	18			
20		28	22			
21		25	32			
22		25	27			
23		31	26			
24		30	26			
25		22	26			
26	1	19	26			
27	1	17	28			
28	1	18	23			
29	2	21	20			
30	5	25	16			
31		27				
Total	10	547	668	105		
Mean	2	18	22	6		
Max	5	31	32	15		
Min	1	3	16	1		
Acre-Feet	20	1085	1325	208		

Water year total: 2,638 acre-feet

Maximum instantaneous peak: 46 cubic feet per second – May 24

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (5 of 15)
Middle Cunningham Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1		2	32	22		
2		2	30	21		
3		2	32	20		
4		2	32	17		
5		1	29	14		
6		2	29	12		
7		3	25	11		
8		5	21	9		
9		4	21	8		
10		4	20	7		
11		3	20	7		
12		7	19	6		
13		11	21	5		
14		11	23	5		
15		14	25	3		
16		18	27	3		
17		23	30	2		
18		29	28	2		
19		31	33	2		
20		31	37	2		
21		29	37	1		
22		28	36			
23		33	35			
24		34	36			
25		27	37			
26		22	38			
27		20	36			
28		22	30			
29		27	26			
30	1	31	24			
31		33				
Total	1	511	869	179		
Mean	1	16	29	9		
Max	1	34	38	22		
Min	1	1	19	1		
Acre-Feet	2	1014	1724	355		

Water year total: 3,095 acre-feet

Maximum instantaneous peak: 48 cubic feet per second – June 26

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (6 of 15)
Ivanhoe Creek Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1		16	87	43		
2		17	82	39		
3		17	87	39		
4		14	82	37		
5		8	73	35		
6		11	70	28		
7		22	62	23		
8		33	55	16		
9		36	51	9		
10		37	48	2		
11		44	45	2		
12		58	41	2		
13		56	57	1		
14		54	67	1		
15		57	55	1		
16		67	39	1		
17		79	36	1		
18		93	50	1		
19		88	54	1		
20		87	65	1		
21		74	91	1		
22	2	67	84	1		
23	2	72	83			
24	3	78	83			
25	4	60	85			
26	5	49	90			
27	4	64	90			
28	4	101	83			
29	6	103	74			
30	12	95	60			
31		89				
Total	42	1746	2029	285		
Mean	5	56	68	13		
Max	12	103	91	43		
Min	2	8	36	1		
Acre-Feet	83	3463	4025	565		

Water year total: 8,136 acre-feet

Maximum instantaneous peak: 131 cubic feet per second – May 29

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (7 of 15)
Lily Pad Creek Feeder Conduit near Norrie, CO
Water Year 2008
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1			22	11		
2			21	11		
3			21	12		
4			21	10		
5			20	9		
6			20	9		
7			16	8		
8		6	15	7		
9		9	14	6		
10		11	14	6		
11		12	14	6		
12		13	14	6		
13		14	15	6		
14		15	15	5		
15		16	14	5		
16		18	14	5		
17		22	14	5		
18		26	15	5		
19		30	15	5		
20		29	15	4		
21		24	15	4		
22		23	14	3		
23		22	14	3		
24		24	14			
25		22	14			
26		19	15			
27		17	16			
28		18	14			
29		21	13			
30		23	11			
31		23				
Total		457	469	151		
Mean		19	16	7		
Max		30	22	12		
Min		6	11	3		
Acre-Feet		906	930	299		

Water year total: 2,135 acre-feet

Maximum instantaneous peak: 37 cubic feet per second – May 19

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (8 of 15)
Granite Creek Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1			28	15		
2			26	14		
3			27	15		
4			25	13		
5			26	12		
6			27	11		
7			23	10		
8			20	9		
9			19	8		
10			19	7		
11		5	18	7		
12		10	17	7		
13		12	48	7		
14		13	65	6		
15		15	38	5		
16		18	21	5		
17		22	22	5		
18		27	21	4		
19		30	24	4		
20		30	24	4		
21		29	24	4		
22		28	24	4		
23		29	22	3		
24		29	23	3		
25		25	22	3		
26		22	21	3		
27		21	21	3		
28		20	19			
29		22	17			
30		25	16			
31		28				
Total		460	747	191		
Mean		22	25	7		
Max		30	65	15		
Min		5	16	3		
Acre-Feet		912	1482	379		

Water year total: 2,773 acre-feet

Maximum instantaneous peak: 73 cubic feet per second – June 14

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (9 of 15)
No Name Creek Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1			28			
2		2	27			
3			27			
4			25			
5			31			
6			29			
7			27			
8		16	24			
9		20	24			
10		22	23			
11		30	23			
12		41	24			
13		46	28			
14		48	27			
15		49	25			
16		41	25			
17		45	25			
18		28	27			
19		28	30			
20		49	31			
21		53	33			
22		59	30			
23		60	28			
24		57	29			
25		41	33			
26		33	35			
27		31	27			
28		31	9			
29		31				
30		30				
31		30				
Total		921	754			
Mean		37	27			
Max		60	35			
Min		2	9			
Acre-Feet		1827	1496			

Water year total: 3,323 acre-feet

Maximum instantaneous peak: 82 cubic feet per second – May 20

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (10 of 15)
Midway Creek Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1			74			
2		4	65			
3		2	67			
4			60			
5			66			
6			64			
7			50	14		
8		19	50	21		
9		18	52	18		
10		22	49	14		
11		31	47	12		
12		42	48	11		
13		45	66	10		
14		47	59	8		
15		53	58	4		
16		63	60			
17		71	65			
18		53	67			
19		46	71			
20		47	71			
21		61	75			
22		83	73			
23		83	72			
24		85	73			
25		73	75			
26		56	65			
27		50	34			
28		55				
29		64				
30		74				
31		80				
Total		1327	1676	112		
Mean		51	62	12		
Max		85	75	21		
Min		2	34	4		
Acre-Feet		2632	3324	222		

Water year total: 6,178 acre-feet

Maximum instantaneous peak: 111 cubic feet per second – May 23

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (11 of 15)
Hunter Creek Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1			71			
2		6	57			
3		2	60			
4			52			
5			55			
6			53			
7			36	12		
8		29	34	6		
9		27	37			
10		28	34			
11		40	33			
12		54	33			
13		53	55			
14		51	57			
15		56	52			
16		68	56			
17		84	61			
18		86	64			
19		60	69			
20		69	69			
21		86	75			
22		84	78			
23		80	74			
24		87	78			
25		65	84			
26		49	101			
27		44	41			
28		50				
29		58				
30		73				
31		81				
Total		1470	1569	18		
Mean		57	58	9		
Max		87	101	12		
Min		2	33	6		
Acre-Feet		2916	3112	36		

Water year total: 6,064 acre-feet

Maximum instantaneous peak: 133 cubic feet per second – June 26

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (12 of 15)
Sawyer Creek Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1			43	36		
2		11	43	35		
3		11	42	34		
4			42	32		
5			46	30		
6			49	28		
7			43	26		
8		16	40	24		
9		16	40	23		
10		18	39	22		
11		22	38	21		
12		25	37	20		
13		27	43	19		
14		28	47	19		
15		31	45	18		
16		36	45			
17		41	48			
18		48	50			
19		49	52			
20		48	53			
21		46	52			
22		45	52			
23		45	52			
24		47	50			
25		44	53			
26		40	57			
27		37	39			
28		35	6			
29		35	6			
30		39	15			
31		43				
Total		883	1267	387		
Mean		34	42	26		
Max		49	57	36		
Min		11	6	18		
Acre-Feet		1751	2513	768		

Water year total: 5,032 acre-feet

Maximum instantaneous peak: 59 cubic feet per second – June 26

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (13 of 15)
Chapman Gulch Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1		19	257	62		
2		25	222	59		
3		17	230	63		
4		10	209	53		
5		10	227	46		
6		17	229	45		
7		54	180	64		
8		95	167	69		
9		100	175	55		
10		105	166	47		
11		140	160	45		
12		189	161	42		
13		197	219	38		
14		191	226	35		
15		216	208	23		
16		233	220	17		
17		258	233	16		
18		266	248	16		
19		228	256	15		
20	3	247	262	14		
21	7	272	267	10		
22	8	282	269			
23	8	284	266			
24	8	298	265			
25	9	260	275			
26	9	206	323			
27	8	183	205			
28	8	194	72			
29	9	213	54			
30	11	248	54			
31		277				
Total	88	5334	6305	834		
Mean	8	172	210	40		
Max	11	298	323	69		
Min	3	10	54	10		
Acre-Feet	175	10580	12506	1654		

Water year total: 24,915 acre-feet

Maximum instantaneous peak: 452 cubic feet per second – June 26

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (14 of 15)
South Fork Fryingpan River Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1		10	106	70		
2		16	84	67		
3		15	82	72		
4		10	78	63		
5		8	86	58		
6		10	86	50		
7		20	71	42		
8		33	69	36		
9		32	68	28		
10		31	65	26		
11		42	62	26		
12		55	62	24		
13		63	82	13		
14		61	69	8		
15		66	75	3		
16		81	81			
17		96	83			
18		118	74			
19	1	118	86			
20	1	120	98			
21	1	110	96			
22	2	99	101			
23	3	100	98			
24	4	110	107			
25	4	89	111			
26	4	72	108			
27	4	66	106			
28	4	71	88			
29	5	88	73			
30	8	106	68			
31		118				
Total	41	2034	2523	586		
Mean	3	66	84	39		
Max	8	120	111	72		
Min	1	8	62	3		
Acre-Feet	81	4034	5004	1162		

Water year total: 10,281 acre-feet

Maximum instantaneous peak: 171 cubic feet per second – May 18

Note: All blank spaces, recorder was not operated; no water was diverted.

Appendix D (15 of 15)
Fryingpan River Feeder Conduit near Norrie, CO
Water Year 2009
Unit: Cubic Feet Per Second
Source: U.S. Bureau of Reclamation

<u>Day</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
1		52	162	103		
2		53	137	101		
3		56	133	108		
4		49	119	96		
5		36	121	89		
6		49	125	81		
7		77	110	75		
8		98	100	69		
9		97	97	65		
10		99	92	61		
11		118	88	57		
12		122	82	55		
13		127	88	52		
14		131	95	48		
15		125	101	43		
16		140	107	39		
17		161	115	35		
18		186	118	31		
19		190	122	24		
20		188	126	23		
21		178	127	23		
22		160	134	21		
23	3	156	134	13		
24	18	167	139	10		
25	21	144	145	4		
26	24	124	147			
27	23	107	149			
28	23	107	133			
29	30	126	117			
30	45	145	109			
31		170				
Total	187	3738	3572	1326		
Mean	23	121	119	53		
Max	45	190	162	108		
Min	3	36	82	4		
Acre-Feet	371	7414	7085	2630		

Water year total : 17,500 acre-feet

Maximum instantaneous peak: 247 cubic feet per second – May 18

Note: All blank spaces, recorder was not operated; no water was diverted.

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

In maintaining the above averages, at no time shall the flow be reduced below 15 cfs during the months of August to April, inclusive, or below 60 cfs during the months of May to July, inclusive, providing the natural flow during said period is not less than these amounts. The obligation to supply the minimum streamflow as set forth in the above table on the Roaring Fork River shall, to the extent of 3,000 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 Fryngpan-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