INTRODUCTION

Annual reports on actual operations and operating plans for reservoir regulation activities were initiated in 1953. The Montana Are Office, Wyoming Area Office, Dakota Area Office and the Regional Office are all responsible for preparing reports on actual operations and operating plans for reservoir within the Upper Missouri River Basin above Sioux City, Iowa. This report briefly summarizes weather and streamflow conditions in the Upper Missouri river Basin during water year 2001, which are principal factors governing the pattern of reservoir operations. This report also describes operations during water year 2001 for reservoirs constructed by the Bureau of Reclamation (Reclamation) for providing flood control and water supplies for power generation, irrigation, municipal and industrial uses, and to enhance recreation, fish, and wildlife benefits.

This report includes operating plans to show estimated ranges of operation for water 2002, with a graphical presentation on a monthly basis. The operating plans for the reservoirs are presented only to show possible operations under a wide range of inflows, most of which cannot be reliably forecasted at the time operating plans are prepared; therefore, plans are at best only probabilities. The plans are updated monthly, as the season progresses, to better coordinate the actual water and power requirements with more reliable estimates of inflow.

A report devoted to "Energy Generation" is included at the end of this report. The energy generation and water used for power at Reclamation and Corps of Engineers' (Corps) plants are discusses, and the energy generated in 2001 is compared graphically with that of previous years. Energy produced at the Reclamation and Corps mainstem plants is marketed by the Department of Energy. Table CET6, entitled "Total Reservoir Storage Contents at the End of Water years 2000 and 2001," compares the water storage available at the beginning of water year 2002 to that available at the beginning of water year 2001. Table CET7 is a summary of the end of month storage contents for each reservoir during water year 2001. The Montana Area Office also assists in the preparation of plans for operation of the Corps reservoir on the main stem of the Missouri river by furnishing depletion estimates based upon the operating plans presented in this report.

All references to a year in this report will mean the water year extending from October 1 through September 30, unless specifically stated otherwise.

SUMMARY OF HYDROLOGIC CONDITIONS AND FLOOD CONTROL DURING 2002

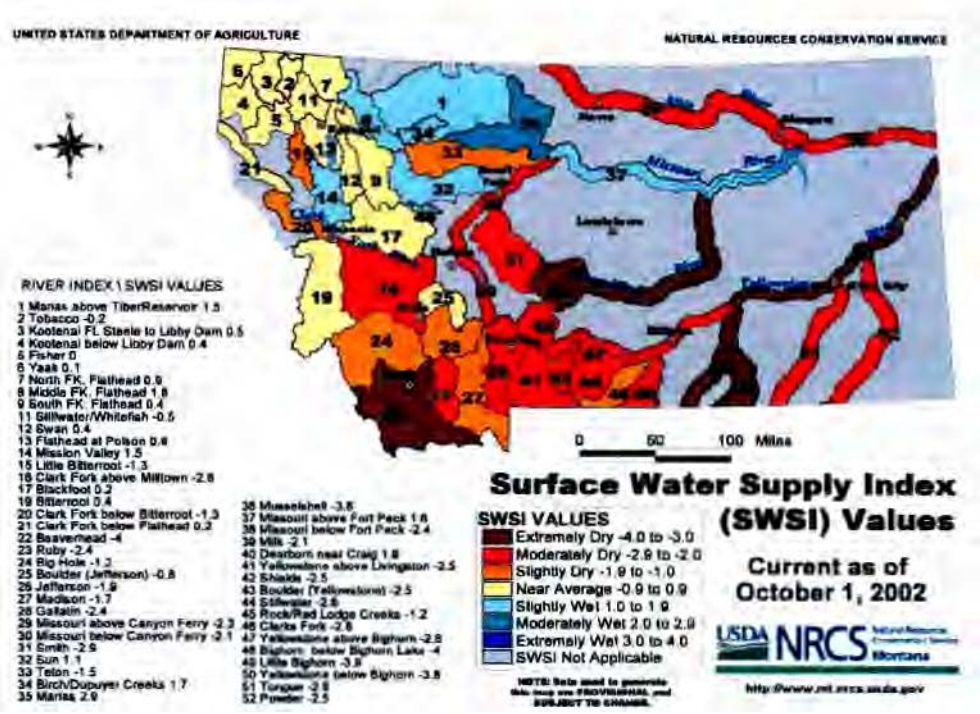
General Summary:

The 2002 snowfall season got off to a slow start for most of Montana, with areas of northwest and southwest Montana being the exceptions. Unlike 2001, low and mid elevation mountain snowpack was generally below to well below average while the high elevation mountain snowpack was near to above average. A fairly strong westerly upper air flow resulted in drier and windier conditions for much of October. A large upper level ridge of high pressure over the western U.S. kept the storm track to the North and thus Pacific storms were unable to move into the area, keeping November unseasonably warm and dry. **On** January 1, the Natural Resources Conservation Service reported mountain snowpack in Montana east of the Continental Divide where Reclamation facilities are located ranged from **6** percent of normal in the Milk River Basin to **86** percent of normal in the Beaverhead River Basin. The mountain snowpack was 72-74 percent of normal in the Bighorn River **Basin** of Wyoming. For most Montana reporting stations located east of the Continental Divide, precipitation during October through December ranged from much below normal to below normal. This was an indication of what was to come. For the northern Rockies, the drought kept its grip for the third consecutive year. Precipitation was much below normal for the Bighorn **Basin** in Wyoming and southwest Montana. Some drought relief was seen in north and northcentral Montana when significant June storm events occurred.

The temperatures in Montana for the year varied considerably. November was unseasonably warm and dry. Several days had record breaking high temperatures in Glasgow, Helena and Great Falls, Montana. The temperatures statewide continued to be unseasonably warm through January, ranging from **5** to 10 degrees above normal. This trend reversed at the end of February when a Canadian cold front moved through Montana. March temperatures dropped well below average ranging from 9 to 18 degrees for areas east of the Continental Divide. This delayed the normal snowmelt in the mountains by about 2 weeks. The cool weather continued through June. Several records were set for low temperatures in Great Falls and Glasgow, Montana. The March through April period was the coldest on record since 1892. July warmed to slightly above average reversing the trend of the previous four months. The final two months of the water year followed the same trend; August was cooler than average, while September was slightly warmer than normal.

As of April 1 it appeared that almost all reservoirs in Montana would be water short. The January 1 forecasted runoff volumes ranged from 38 to 88 percent of average among Reclamation reservoirs east of the Divide. The outlook improved slightly as winter came to an end. The April 1 forecasted runoff volumes ranged from 33 to 97 percent of average, MTT2. Fortunately, due to heavy June rain events in northwest and northcentral Montana the actual inflows to the reservoirs changed significantly. Overall, these rainstorms contributed to the highest inflow on record at Fresno Reservoir and Lake Sherburne and the third highest inflow to Lake Elwell for the month of June. The actual runoff for water year 2002 ranged from 41 to 122 percent of average. The lowest annual inflows to Reclamation reservoirs were in southwest Montana and the Bighorn Basin in Wyoming. Leading into water year 2003 the drought remains prominent in the Bighorn Basin in Wyoming and southcentral Montana as well as in the Beaverhead River Basin in southwestern Montana.

The only Reclamation reservoirs in Montana that filled were Gibson, Fresno, Pi shkun, Willow Creek Reservoirs and Lake Elwell. Lake Elwell filled into the flood pool and Fresno filled into the surcharge pool.



The flood damages prevented in 2002 totaled $6,466,600. The largest contributor to the total was Canyon Ferry, which prevented $2,210,100 in mainstem damages and $509,400 in local damages. The most significant prevention for local flood damages was Fresno Dam which was valued at approximately $2,237,100.

Antecedent Conditions:

There were extremely dry conditions that existed following the 2001 water year. September began very warm, which lead to temperatures for the month being normal to above normal.

Valley precipitation for water year 2001 was below normal for all basins where Reclamation reservoirs are located. It ranged from 65 percent of average in the Milk and St. Mary basins to 81 percent in the Jefferson basin. The mountain precipitation was also well below average in all of the basins where Reclamation reservoirs are located. The driest basin was the St. Mary at 57 percent of average while even the wettest basin, the Jefferson, was only at 77 percent of average. Water year 2001 ended with September having precipitation that was below average to above average.

The 2001 snowpack as of April 1 was below normal to much below normal in the river basins in Montana and Wyoming. It ranged from 50 percent of normal in the Wind River basin in Wyoming to 63 percent of normal in the Jefferson basin. The low snowpack, in addition to the below average valley rains produced dry conditions east of the Continental Divide. The dry conditions were reflected in the inflows for the year.

Inflows for water year 2001 were much below average and several low inflow records were set. Annual inflow to Gibson Reservoir was the fifth lowest on record; the fourth lowest for Clark Canyon Reservoir; the third lowest on record for Lake Sherburne; the second lowest on record for

Canyon Ferry Reservoir, Fresno Reservoir, and Lake Elwell; and the lowest on record for Bighorn Lake.

The end of September storage for Reclamation reservoirs ranged from much below average to below average for the month of September, with the exception of Pishkun Reservoir, which was 114 percent of normal. Releases during 2001 were very conservative at Reclamation projects. At the four major Reclamation projects, Yellowtail, Clark Canyon, Canyon Ferry and Tiber Dams releases were below the minimum desired for the fishery as recommended by the Montana Fish, Wildlife, and Parks (MFWP).

Snowpack:

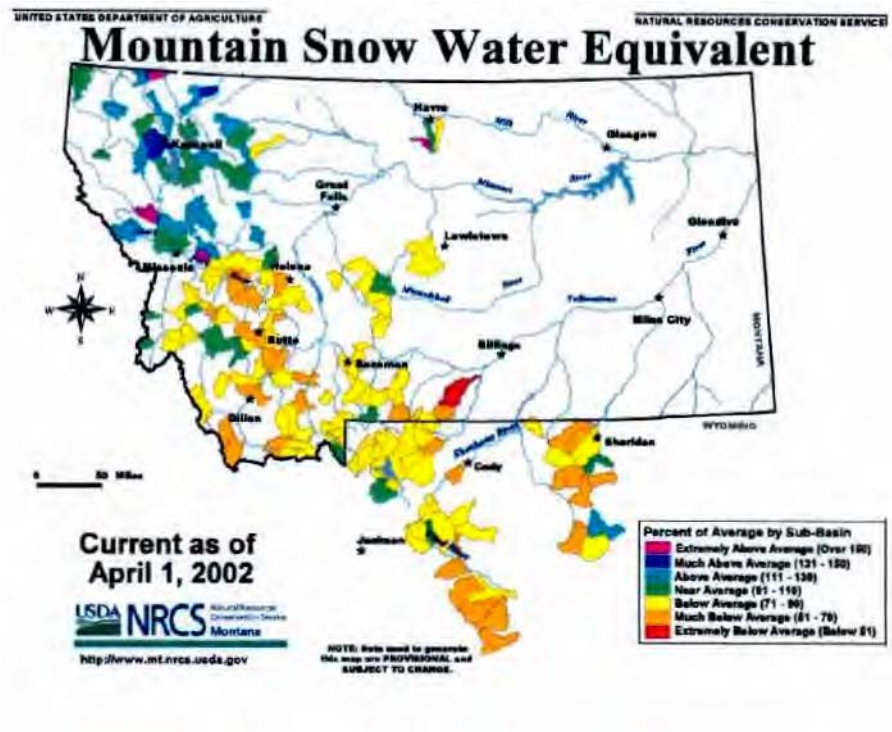
The mountain snowpack east of the Divide generally accumulated in October at near to above normal rates, but accumulation slowed considerably by November according to SNOTEL sites. December produced some snowpack, indicating that the high elevation mountain snowpack was near to above average for the month. However, the low and mid elevation mountain snowpack remained below to well below average. The snow water content ranged from 6 to 86 percent of normal on January 1 for areas of Montana east of the Continental Divide where Reclamation facilities are located. The snow water content was 74 percent of normal in the Bighorn River Basin of Wyoming, Table MTT1.

January produced some mountain snow which was much improved over December. The most significant snow storms were in the central and northcentral Montana. East of the Continental Divide, January snowpack was 79 percent of average and 135 percent of last year. Snowpack statewide was 90 percent of average and 161 percent of last year. February continued the trend of below average snowpack with the exceptions of the Marias and St. Mary basins. The western slope of the Continental Divide continued to be at or above normal snowpack. Conversely, the eastern slope was at 78 percent of average, but still 123 percent of last year. Several areas including Upper Clark Fork, Missouri Mainstem Headwaters, Jefferson, Milk, and Upper Yellowstone River basins had snowpack below 2001.

Snowfall accumulated at above the normal rate during March through May. March was more promising due to above normal snowpack in the Sun-Teton and Milk River basins. In addition, there was above normal snowpack in the Marias and St. Mary basins. East of the Divide snowpack was 83 percent of average and 136 percent of last year. West of the Divide the snowpack continued to be near or above average. Statewide the March mountain snowpack was 96 percent of average and 158 percent of last year.

When the April snowpack began to melt the snow water content was generally greater than 2001, but it was still below average for several basins where Reclamation reservoirs are located in Montana and Wyoming. Late snow in the second half of April helped to reduce the snow melt in some areas of central and northcentral Montana. The end of April values ranged from 74 percent of normal at Bighorn Lake to 131 percent of normal at Lake Elwell and Gibson Reservoir.

The end of May snowpack varied widely from well above average to below average. **In Montana,** east of the Divide snowpack was 79 percent of average and west of the Divide the snowpack was 151 percent of average. Statewide, mountain snow water content was 117 percent of average. The peak mountain snowpack was much below normal for southwest Montana and Bighorn River Basin in Wyoming, but near or above normal for the north and northcentral basins in Montana. June storms did provide some late snow pack in northcentral Montana. The peak snowpack for Reclamation reservoirs was between April 8 and May 11. The peak is generally around April 15; however spring storms above Gibson Reservoir and Lake Elwell extended it by a few weeks, Figure MTG 1.



Precipitation and Temperature

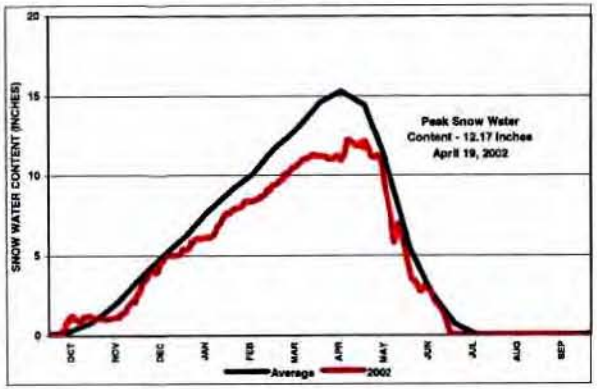
The 2002 water year began with October temperatures that were within normal limits; no temperature records were set for the month. Temperatures ranged from 1.4 degrees below normal at Billings, Montana, to 3.2 degrees above normal at Helena, Montana. At Reclamation facilities the range of temperatures was equally large. Precipitation for the month was much below normal to below normal. The exception was at Butte, Montana, which received 148 percent of normal. Precipitation values where Reclamation reservoirs are located east of the Continental Divide ranged from 5 percent of normal at Lake Elwell to 90 percent of normal at Canyon Ferry Reservoir.

November through January was unseasonably warm and dry. Temperatures were above average and ranged from 5 degrees above normal at Butte, Montana, to 7.9 degrees above normal at Great Falls, Montana. Record highs were set in Butte and Glasgow on November 9 th; in Great Falls on the le; and in Helena on the 5 th, 9th and 14th The temperatures for December and January were above normal ranging from 5 to 10 degrees statewide to 2 to 5 degrees in southwest Montana.

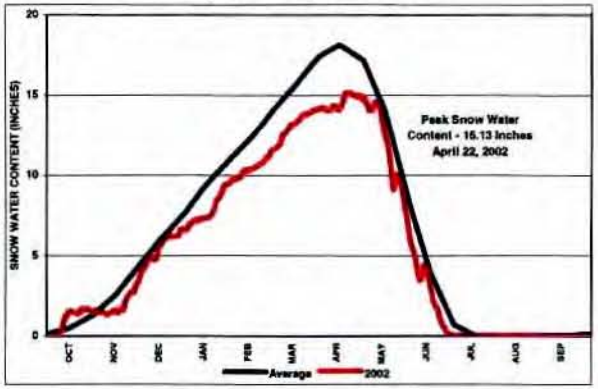
November through January precipitation was much below average to average. November ranged from 1 percent of normal at Fresno Reservoir to 111 percent of normal at Lake Elwell. December mountain and valley precipitation across the state was 75 percent of average and 115 percent of last year. East of the Continental Divide, precipitation was 66 percent of average. Precipitation in January improved across Montana. Statewide the month ended at 104 percent of average and 315 percent of last year. West of the Continental Divide precipitation was above normal, while east of the Divide the mountain and valley precipitation was still slightly below average for the month.

Figure MTG1
WATER YEAR 2002
SNOW WATER CONTENT

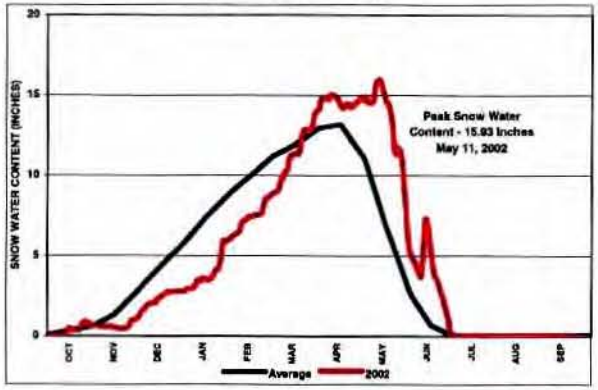
Clark Canyon Reservoir



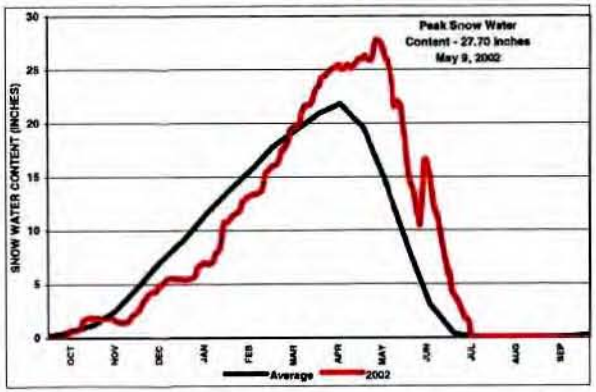
Canyon Ferry Reservoir



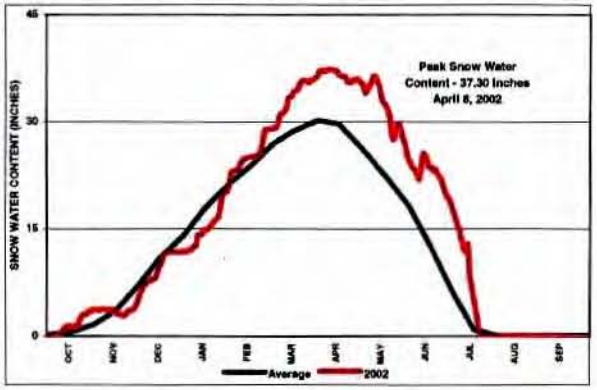
Gibson Reservoir



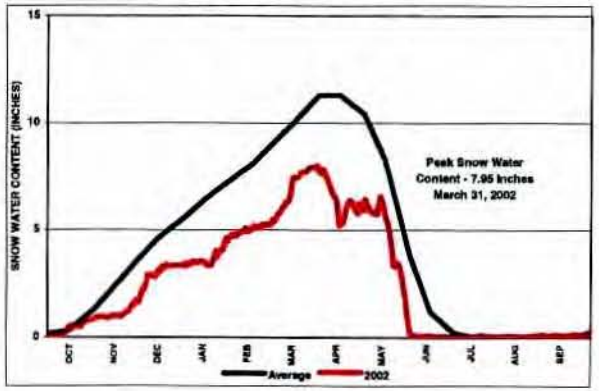
Lake Elwell



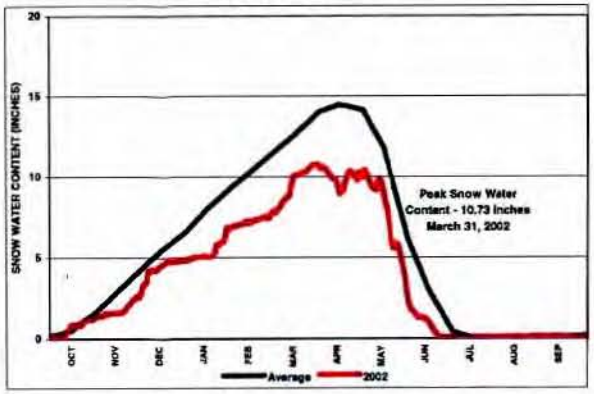
Lake Sherburne



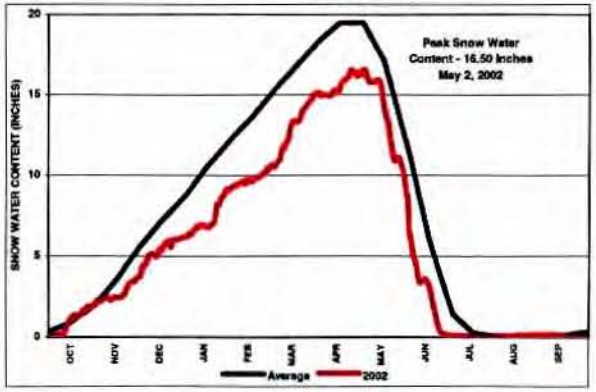
Bull Lake Reservoir



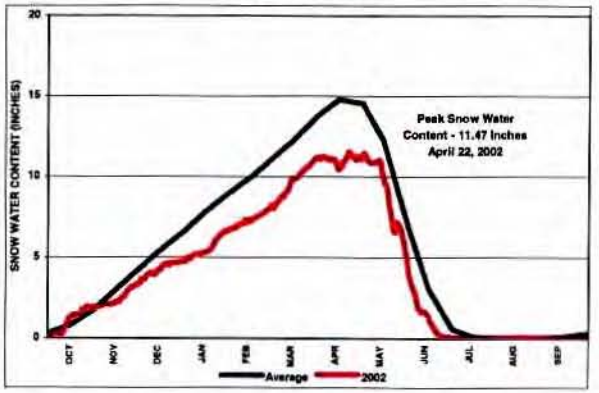
Boysen Reservoir



Buffalo Bill Reservoir



Bighorn Lake



February produced some mountain and valley precipitation. This was due to a Canadian cold front that moved through in the latter part of the month. However, the snow had relatively low water content and thus leaving Montana with only 87 percent of average snowpack. By the end of the month the statewide water year precipitation was 91 percent of average. East of the Divide it was 85 percent of average bringing the total water year precipitation for east of the Divide to 81 percent of average and 112 percent of last year.

March temperatures were below average ranging from 9 to 18 degree below normal east of the Continental Divide. This kept already accumulated snow in the mountains from an early melt. The precipitation statewide was 110 percent of average and 164 percent of last year. East of the Divide, March mountain and valley precipitation was still slightly below average, but still better than 2001. By the end of March the water year precipitation for east of the Divide was 84 percent of average and 122 percent of last year.

April contained variable weather across Montana. The fist half of the month was warm, however by the second half cold weather set in. The overall temperature for April was near or slightly below average. In 2002 the March-April was the coldest on record since 1892. At this point in the water year every basin where Reclamation reservoirs were located were below average for precipitation, with the driest areas being southwest and northcentral Montana and the Bighorn Basin in Wyoming. The only area with a positive outlook was the St. Mary basin, which was at 120 percent of average. April mountain and valley precipitation across the state was 91 percent of average, while the water year precipitation was 95 percent of average. However, east of the Divide, April mountain and valley precipitation was only 88 percent of average while the cumulative water year precipitation was at 84 percent of average. West of the Divide the mountain and valley precipitation was near average.

May produced near to above average amounts of precipitation. Early in May snowstorms added good moisture to areas that had not seen significant precipitation all winter. Across Montana mountain precipitation was 95 percent of average and 144 percent of last year. East of the Divide May mountain and valley precipitation was 85 percent of average and 248 percent to last year. West of the Divide the cumulative precipitation for the water year was 108 percent of average.

June produced cold temperatures with some records being set. The record lows were set on June 9th and 10th for Great Falls, Montana. Average temperatures during March through June were the coldest 4 months ever reported at Glasgow, averaging only 41.1 degrees Fahrenheit. By the end of June temperatures returned to near normal. East of the Divide precipitation was generally near normal. Most of the precipitation came in storm events that produced large volumes in short durations. Storms occurring June 8-11 produced as much as 10.5 inches of rain in northcentral Montana. Other areas of northcentral and central Montana received between 2 and 4 inches of rain. Another widespread event occurred on the 22nd when over an inch of rain fell in parts of central Montana, with some places receiving over 3 inches from thunderstorms that remained nearly stationary for hours. Great Falls reported 2.24 inches of rain fell on the 10th, breaking the previous one day record that was established in 1917. Helena reported much above normal precipitation during the fist part of the month contributing to it being the 5th wettest June on record. West of the Divide precipitation was below normal.

July was warmer than average, reversing the trend from the pervious four months that were cooler than usual. A strong upper level ridge of high pressure persisted much of July over the Rockies. A warm southwesterly flow with this system was responsible for the warmth. Helena reported the third warmest July on record. East of the Divide precipitation during July was near to above normal. Havre and Helena reported July was the second and third consecutive month with above normal precipitation, respectively.

August was cooler than average. New record low temperatures were set at several locations throughout Montana. A broad upper level trough of low pressure dominated the weather with below normal temperatures. August temperatures in Great Falls were the second coolest on record. The precipitation for August east of the Divide was near normal to well above normal. It ranged from approximately 87 percent of normal for Bighorn Basin in Wyoming to 206 percent at Lake Elwell.

September was slightly warmer and wetter than normal. The first few days of the month were warm and dry until a Canadian cold front moved through the region that brought much needed moisture. The middle of the month was warm but by the end a series of cold fronts moved through the area bringing more precipitation. The mountain and valley precipitation again varied significantly, southwest and northcentral Montana were near to above average while the Bighorn basin in Wyoming and southcentral Montana finished below average.

The temperatures and precipitation for water year 2002 varied significantly between basins. Temperatures were warm in the fall and ranged from warmer to cooler than average for the spring and summer. Precipitation for many basins was much below normal with the only exceptions being areas in northcentral and central Montana, Table MTT3. The Marias, Milk and St. Mary basins all finished the water year with above normal mountain and valley precipitation.

Streamflow:

October through December inflows were much below normal at all Reclamation reservoirs in Montana east of the Continental divide. The values ranged from negative calculated inflows at Fresno Reservoir and Lake Elwell to near or above average inflow at Lake Sherburne. During the fall several new record lows were set. In October, inflows to Bighorn Lake, Canyon Ferry, Clark Canyon and Lake Elwell Reservoirs were the lowest on record. November produced the second lowest inflows on record for Clark Canyon Reservoir and Lake Elwell as well as the lowest inflows on record to Bighorn Lake and Canyon Ferry Reservoir. The second lowest inflows were recorded at Clark Canyon, Canyon Ferry and Bighorn Lake and the lowest at Lake Elwell for the month of December.

January through March inflows were much below normal to much above normal. The values ranged from a calculated negative inflow at Fresno Reservoir and 45 percent of average at Bighorn Lake to as high as 134 percent of normal at Lake Sherburne. Inflow for January to Bighorn Lake was the second lowest on record. February inflow to Lake Elwell and Clark Canyon was the third lowest on record. Inflow to Canyon Ferry and Gibson Reservoirs was the second lowest on record; and inflow to Bighorn Lake was the lowest on record. A record low for March was set for inflow to Clark Canyon, Canyon Ferry, Lake Elwell and Bighorn Lake. Gibson and Fresno Reservoirs had the second lowest inflow on record for the month of March.

April through June inflow ranged from much below normal to above normal at Reclamation reservoirs in Montana east of the Continental Divide. The inflows were much below average at reservoirs in the Bighorn basin in Wyoming and southwest Montana and significantly above average for reservoirs in north and northcentral Montana. April inflow to Clark Canyon and Bighorn Lake was the lowest on record. May and June continued the same general trend of inflow to Reclamation reservoirs east of the Divide. June inflow to Fresno Reservoir was 331 percent of average due to large precipitation events over north and northcentral Montana. The precipitation events contributed to the highest inflow on record at Fresno Reservoir and Lake Sherburne and the third highest inflow to Lake Elwell for the month of June.

Inflow for July through September ranged from much below average to much above average. Again reservoirs in northcentral and central Montana had above average inflow, while southwest Montana and Bighorn Lake received much below average. For example, during the month of August, inflow to Clark Canyon Reservoir and Bighorn Lake were the third lowest on record and inflow to Lake Elwell was the fifth highest of record. September continued the pattern with inflow to Clark Canyon being the second lowest on record while conversely; the inflow to Fresno Reservoir was significantly above average.

The peak inflow for the water year at Clark Canyon Reservoir was 218 cfs on July 27 and for Canyon Ferry the peak inflow was 16,413 cfs on June 3. For both reservoirs the peak inflow was below average. In the Sun River Basin the peak inflow for Gibson, Pishkun and Willow Creek Reservoirs were 6,208 cfs on June 17; 1,424 cfs on August 7; and 247 cfs on June 10, respectively. The Sun River Basin inflows were near or slightly above average. In northcentral and central Montana the peak inflows were higher than average. At Lake Sherburne, the peak inflow was 1,871 on May 30. In the Milk River Basin the peak inflow for Fresno and Nelson Reservoirs was 11,903 cfs on June 13 and 429 cfs on May 21, respectively. In the Bighorn River Basin peak inflow was 6,115 cfs on June 2 which is much below normal.

The total annual inflows ranged from much below normal to above normal. The areas of near to above normal total inflow were in northcentral Montana. Conversely, Reclamation reservoirs in southwest and southcentral Montana as well as northern Wyoming received record low inflows. The total 2002 water year inflow to Clark Canyon and Canyon Ferry were second and fourth lowest on record, respectively. Total inflow into Bighorn Lake was the lowest on record. These trends continued into the 2003 water year.

TABLE MTT1
2002 MOUNTAIN SNOW WATER CONTENT
AS A PERCENT OF NORMAL

DRAINAGE BASIN	JAN 1	FEB 1	MAR 1	APR 1	MAY 1
Beaverhead	86	85	79	74	77
Jefferson	76	79	75	77	76
Madison	95	92	86	84	85
Gallatin	92	88	88	84	84
Missouri Headwaters above Toston	84	84	80	80	80
Sun-Teton	59	81	86	110	134
Marias	63	84	88	112	131
Milk River	6	25	47	111	84
St. Mary	82	105	104	118	124
Wind	72	71	66	75	68
Shoshone	70	75	69	81	81
Bighorn (Boysen-Bighom)	74	70	69	73	74

TABLE MTT2
2002 WATER SUPPLY FORECASTS

RESERVOIR	JAN 1"		FEB 1'		MAR 1"		APR 1[21]		MAY l'		JUN l'		ACTUAL APRIL-JULY'		% OF APRIL
	1,000 AC-FT	% OF AVG	1,000 AC-FT	% OF AVG	1,000 AC-FT	% OF AVG	1,000 AC-FT	% OF AVG	1,000 AC-FT	% OF AVG	1,000 AC-FT	% OF AVG	1,000 AC-FT	% OF AVG	FORE-CAST REC'D
Clark Canyon	55.8	50	64.8	58	51.0	45	51.0	45	44.0	48	25.4	40	33.4	30	65
Canyon Ferry	1,132.0	56	1,173.0	58	1,150.0	57	1,038.0	51	854.0	51	709.0	64	1,143.0	56	110
Gibson	299.0	63	288.0	60	332.0	70	407.0	85	443.0	101	310.0	116	441.3	92	108
Tiber	219.2	45	275.9	57	361.0	74	411.0	85	396.0	94	244.0	96	684.2	141	166
Sherbume	82.0	79	89.0	85	97.0	93	101.0	97	102.0	107	71.0	113	139.1	134	138
Fresno	35.8	38	33.1	35	34.0	36	31.0	33	23.0	51	7.9	49	195.0	205	574
Yellowtail	661.7	55	649.6	54	673.3	56	574.2	48	539.0	53	317.3	42	408.3	34	71

1/ Runoff Forecast for April-July; Fresno Reservoir is March-September.
2/ Runoff Forecast for April-July; Fresno Reservoir is April-September.
3/ Runoff Forecast for May-July; Fresno Reservoir is May-September.
4/ Runoff Forecast for June-July; Fresno Reservoir is June-September.
5/ Actual Runoff for April-July; Fresno Reservoir is March-September.

TABLE MTT3
PERCENT OF AVERAGE PRECIPITATION
2002 VALLEY PRECIPITATION

BASIN	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Beaverhead												
Monthly % of Average	41	106	38	168	77	67	74	35	113	68	87	123
Year-to-Date % of Average	41	64	58	78	78	76	75	61	73	73	74	79
Jefferson												
Monthly % of Average	76	79	51	109	79	61	61	59	121	76	91	93
Year-to-Date % of Average	76	77	71	79	79	75	72	68	80	80	81	82
Madison												
Monthly % of Average	139	62	93	67	64	54	112	75	67	29	61	69
Year-to-Date % of Average	139	96	95	88	84	78	83	82	79	75	74	73
Gallatin												
Monthly % of Average	107	16	87	144	76	26	47	125	173	101	128	
Year-to-Date % of Average	107	69	73	86	85	72	66	82	100	100	102	93
Missouri Above Toston												
Monthly % of Average	110	60	83	84	68	55	84	77	115	63	83	72
Year-to-Date % of Average	110	85	84	84	81	76	78	77	85	82	82	81
Sun-Teton												
Monthly % of Average	21	58	68	107	140	154	88	67	126	61	125	112
Year-to-Date % of Average	21	40	50	65	79	90	90	85	92	89	93	94
Marias												
Monthly % of Average	21	104	1	44	115	102	49	99	230	85	118	161
Year-to-Date % of Average	21	53	38	40	50	62	59	74	121	116	116	120
Milk												
Monthly % of Average	39	30	1	52	82	123	24	72	179	128	230	98
Year-to-Date % of Average	39	36	25	31	39	55	48	56	92	98	113	111
St. Mary												
Monthly % of Average	93	43	49	140	165	305	132	131	96	57	81	65
Year-to-Date % of Average	93	66	60	81	95	118	120	122	118	111	108	105
Bighorn Above Yellowtail												
Monthly % of Average	37	58	37	66	67	128	59	20	0	0	0	0
Year-to-Date % of Average	37	44	43	47	50	67	64	50	41	36	33	30

2002 MOUNTAIN PRECIPITATION

BASIN	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Lima Resevoir												
Monthly % of Average	110	87	133	71	57	54	93	54	82	43	51	81
Year-to-Date % of Average	110	97	110	99	91	84	85	81	81	78	76	77
Clark Canyon Reservoir												
Monthly % of Average	126	70	96	81	65	64	107	69	103	52	58	65
Year-to-Date % of Average	126	94	95	91	86	82	85	82	85	82	81	80
Jefferson Drainage												
Monthly % of Average	140	64	89	79	59	72	99	86	124	73	81	73
Year-to-Date % of Average	140	95	93	89	83	81	84	84	88	87	87	86
Madison Drainage												
Monthly % of Average	143	84	116	84	65	74	96	81	102	45	58	97
Year-to-Date % of Average	143	108	111	103	95	91	91	90	91	89	87	88
Gallatin Drainage												
Monthly % of Average	148	53	88	81	89	63	64	99	91	51	61	65
Year-to-Date % of Average	148	96	93	90	89	84	80	84	84	83	81	80
Canyon Ferry Reservoir												
Monthly % of Average	142	69	99	82	66	73	95	86	114	65	72	79
Year-to-Date % of Average	142	99	99	94	88	85	87	86	89	88	87	86
Gibson Reservoir												
Monthly % of Average	102	29	52	99	116	172	119	103	194	59	105	101
Year-to-Date % of Average	102	59	56	69	79	95	98	99	109	106	106	105
Lake Elwell Reservoir												
Monthly % of Average	127	34	65	112	113	176	127	109	220	68	80	90
Year-to-Date % of Average	127	70	68	82	89	103	106	107	117	115	112	111
Sherburne Reservoir												
Monthly % of Average	192	50	87	137	118	139	118	114	165	56	72	83
Year-to-Date % of Average	192	97	93	106	108	113	113	113	118	114	112	111
Bighorn Lake												
Monthly % of Average	137	76	63	83	71	111	109	71	45	90	84	72
Year-to-Date % of Average	137	104	90	88	85	90	94	90	84	85	85	83

Reservoir Storage and Releases:

The water year storage began in October with Reclamation reservoirs ranging from much below average to below average storage. October 1 storage in the Upper Missouri Basin was 2,232,300 acre-feet, 81 percent of average. Storage for the Milk River Project was 57,600 acre-feet, 54 percent of normal. Storage in Bighorn Lake in the Bighorn River Basin was 760,400 acre-feet, 75 percent of normal. By the end of October storage had improved slightly in Reclamation reservoirs and most ranged from much below average to average. These storage levels continued through December. The storage content ranged from 33 percent of normal at Clark Canyon Reservoir to 108 percent of normal at Pishkun Reservoir. End of November storage in Bighorn Lake was the lowest on record. Clark Canyon and Canyon Ferry Reservoirs were the second lowest on record.

The winter storage in Reclamation reservoirs ranged from much below average to average. January through March storages had reservoirs in central and southwest Montana much below average, while reservoirs in northcentral Montana above average. For example, February storage ranged from 16 percent of normal at Fresno Reservoir to 105 percent of normal at Pishkun Reservoir. End of January storage in Clark Canyon and Fresno Reservoir were the second lowest on record, while the end of January storage for Bighorn Lake was third lowest. February storage in Clark Canyon and Fresno Reservoirs was the second lowest on record, while storage in Bighorn reservoir was third lowest on record.

These conditions continued through the end of April. The storage for April ranged from much below average to average. It ranged from 28 percent of normal at Fresno Reservoir to 98 percent of normal at Canyon Ferry Reservoir. End of April storage for Clark Canyon was the second lowest on record, as well as storage in Fresno Reservoir and Bighorn Lake. The storage in Reclamation facilities east of the Continental Divide continued to be much below average to average through the end of May. The extremely dry conditions contributed to an end of month storage at Clark Canyon and Bighorn Lake being the lowest on record.

June through August storage ranged from much below average to much above average. Storage in Reclamation reservoirs in north and northcentral Montana were much above normal. In the Bighorn basin and southwest Montana several record low storage levels were set. The end of June through September storage in Clark Canyon Reservoir and Bighorn Lake were the lowest on record. Conversely, the end of July storage in Lake Elwell was the fifth highest on record.

The water year ended in September with storage ranging from much below average to above average. Entering the new water year the Reclamation reservoirs in northcentral and central Montana were all near or above normal storage. The low storage conditions remained in the same locations in Montana and Wyoming. The Reclamation reservoirs with the least amount of carryover storage were Clark Canyon and Bighorn Lake, both of which began the 2003 water year at record low levels.

Releases from Reclamation reservoirs were very conservative for the entire year because of the severe drought conditions. In general, releases were only increased when absolutely necessary for either spring runoff or irrigation demands. In the Missouri and Bighorn basins the minimum fishery flows were used for most of late summer and fall releases. Releases from Clark Canyon Dam were

set for the winter at absolute minimums for river fisheries beginning in mid-August. Reservoirs with better storage, as in north and northcentral Montana, maintained average to above average release in the latter part of 2002.

Peak release was greater than peak inflow at Clark Canyon. The release was approximately 600 cfs greater than the peak inflow. Peak release at Clark Canyon was 813 cfs on July 20th. The inflow peaked at 218 cfs shortly after the peak release. The peak inflow for Canyon Ferry was 16,414 cfs and peak release was 6,121 cfs. Inflow to Gibson Reservoir peaked at 6,208 cfs and release peaked at 5,655 cfs. Inflow to Lake Elwell peaked at 17,317 cfs and release peaked at 5,297 cfs. Inflow to Lake Sherburne peaked at 1,871 cfs and release peaked at 1,487 cfs. Inflow to Fresno Reservoir peaked at 11,904 cfs and release peaked at 2,337 cfs. Inflow to Bighorn Lake peaked at 6,116 cfs and release peaked at 1,543 cfs. The peak release from Bighorn Lake was on October 10, 2001 and was not exceeded for the entire water year.

FLOOD BENEFITS

The Corps of Engineers evaluated the reservoir regulation data pertaining to Reclamation reservoirs within the jurisdiction of the Montana Area Office and indicated that 4 reservoirs provided flood relief during water year 2002. They were: Canyon Ferry on the Missouri River near Helena, Montana, Lake Elwell on the Marias River near Chester, Montana, Fresno Reservoir on the Milk River near Havre, Montana, and Bighorn Lake on the Bighorn River near Fort Smith, Montana.

Canyon Ferry and Fresno Reservoirs played the most important role in preventing flood damages during the 2002 runoff season. The most notable examples of peak flows regulated by Bureau reservoirs during the spring runoff are as follows:

Reservoir	Peak Inflow (cfs)	River Discharge (cfs)	Date
Canyon Ferry	16,414	2,552	06/03/02
Lake Elwell	17,317	893	06/11/02
Fresno Reservoir	11,904	838	06/13/92
Bighorn Lake	6,116	1,488	06/02/02

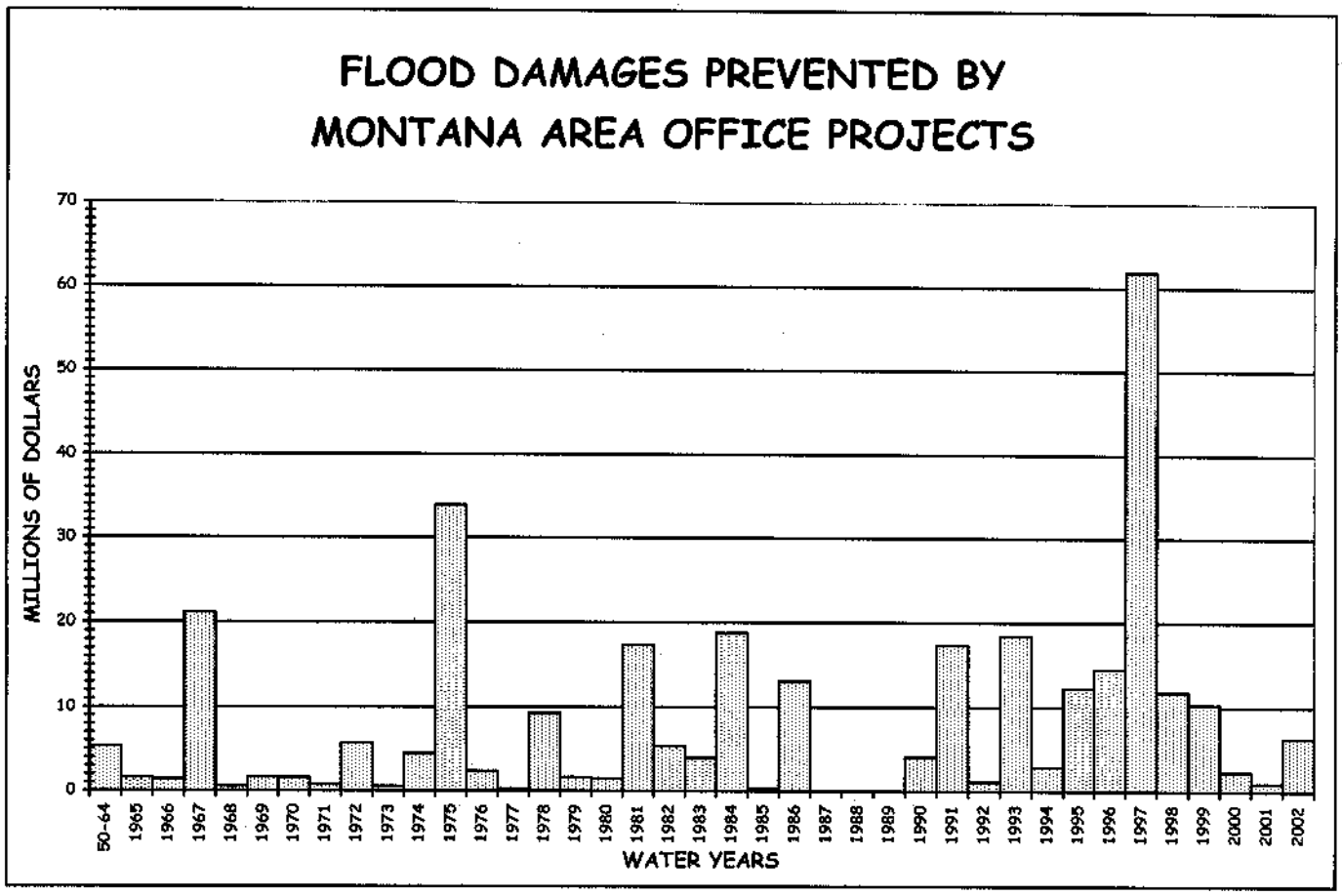
The Corps estimated these 4 Bureau reservoirs in Montana reduced flood damages by $6,466,600 in 2002. Some of these benefits were derived by reducing local damages and other benefits were derived by storing water which would have contributed to flooding downstream on the main stem of the Missouri River below Fort Peck Reservoir. The distribution of flood damages prevented is as listed in Table MTT4. For additional information on the operations of the reservoirs which provided flood control, refer to the individual "Summary of Operations for 2002" for each reservoir in this report. Figure MTG2 shows the annual flood damages prevented by Montana Area Office reservoirs since 1950.

TABLE MTT4
FLOOD DAMAGES PREVENTED
(THOUSANDS OF DOLLARS)

Reservoir	Local	Main Stem	2002 Total	Prev. Accum.	1950-2002 Accum. Total
Clark Canyon	$ 0.0	$ 0.0	$ 0.0	$ 11,949.7	$ 11,949.7
Canyon Ferry	509.4	2,210.1	2,719.5	133,598.3	136,317.8
Gibson[1]	0.0	0.0	0.0	3,044.5	3,044.5
Lake Elwell	70.2	1,027.5	1,097.7	56,092.4	57,190.1
Fresno	2,237.1	0.0	2,237.1	10,882.2	13,119.3
Yellowtail	0.0	412.3	412.3	94,600.5	95,012.8
Total	$ 2,816.7	$ 3,649.9	$ 6,466.6	$310,107.7	$316,574.3

[1] No space allocated to flood control, but some flood protection provided by operation for other purposes.

FIGURE MTG2


FLOOD DAMAGES PREVENTED BY
MONTANA AREA OFFICE PROJECTS
MILLIONS OF DOLLARS
0
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20
30
40
50
60
70
50-64
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WATER YEARS

UNIT OPERATIONAL SUMMARIES FOR WATER YEAR 2002

Clark Canyon Reservoir

Clark Canyon Reservoir, a Pick-Sloan Missouri Basin Program (P-S MBP) project, is located on the Beaverhead River approximately 20 miles upstream from Dillon, Montana. It has a total capacity of 257,152 acre-feet (255,643 acre-feet active). The reservoir is the storage facility for the East Bench Unit providing a full water supply for irrigation of 21,800 acres and a supplemental supply for about 28,000 acres. Flood control, recreation, and fish and wildlife are among the other functions served by the reservoir.

In 2000, Reclamation surveyed Clark Canyon Reservoir to develop a topographic map and compute a present storage-elevation relationship (area-capacity tables). The data were used to calculate reservoir capacity lost due to sediment accumulation since dam closure in August of 1964. The 2000 survey determined that Clark Canyon Reservoir has a storage capacity of 174,367 acre-feet and a surface area of 5,151 acres at a reservoir elevation of 5546.10. Since closure in 1964, the reservoir has accumulated a sediment volume of 4,106 acre-feet below elevation 5546.10. This volume represents a 2.3 percent loss in capacity and an average annual loss of 114.7 acre-feet. The revised area-capacity table was put into effect on October 1, 2001, reflecting the new storage levels.

Valley and mountain precipitation in the Beaverhead River Basin was well below normal during August and September of 2001. Inflow to Clark Canyon during August and September was 50 and 42 percent of average respectively. Large irrigation demands during water year 2001 had placed a heavy demand on storage in Clark Canyon Reservoir. Following the conclusion of the irrigation season and after the Labor Day weekend, releases from Clark Canyon were reduced to the desired fall and winter flow rate of 35 cfs on September 6. Beginning at that time, storage in Clark Canyon began to steadily increase and entered water year 2002 with a content of 36,470 acre-feet at elevation 5507.05. At 28 percent of average, this was a new record low level for this time of year and 25,290 acre-feet or 10.75 feet lower than at the beginning of water year 2001.

A large winter storm system moved into the Beaverhead River Basin about October 10. Mountain snowpack increased considerably and by October 12, snowpack in the basin was reported at nearly 300 percent of average. After that the snow suddenly stopped falling in the basin and by the end of October, the mountain snowpack was reported at only 105 percent of average. Snow continued to fall over the mountains of the Beaverhead River Basin at below normal rates and on January 1, the Natural Resources and Conservation Service measured snowpack in the Beaverhead River Basin at 86 percent of average. As the winter of 2001-2002 proceeded, snowfall was light and the mountain snowpack in the Beaverhead River Basin continued to deteriorate. By May 1, the snowpack was measured at 77 percent of average, a decline of almost 10 percent from that recorded on January 1. However, this was a 7 percent improvement over that experienced a year ago. The low snowpack conditions indicated the drought of 2001 was still lingering on and would continue into 2002, but it was still uncertain how severe it would be.

The fall and winter inflow to Clark Canyon Reservoir for October through March was 61,579 acre-feet, or 54 percent of normal. This was 16,920 acre-feet or 15 percent lower than experienced in 2001 and the second lowest inflow of record since construction of Clark Canyon Dam. Because of the near record low runoff into Clark Canyon Reservoir and the low reservoir level of Clark Canyon, fall and winter releases to the Beaverhead River were reduced and maintained at 35 cfs through April. This allowed storage to slowly increase to a peak for the year of 89,226 acre-feet at elevation 5526.97 by May 2, 2002. This was 56 percent of normal and 51 percent of full capacity. This was also 37,522 acre-feet or 8.54 feet lower than at this same time a year ago.

Based on the mountain snowpack, the water supply forecast prepared on April 1, indicated the April-July runoff into Clark Canyon would be 45 percent of normal, totaling 51,000 acre-feet. At a meeting held on March 29, the Bureau of Reclamation presented East Bench Irrigation District with this latest water supply forecast. Using this forecast, the East Bench Irrigation District set the irrigation allotments for the 2002 irrigation season at 1.3 acre-feet per acre for Class I & II lands and 1.6 acre-feet per acre for Class III lands. Weather conditions improved a bit in April. Late spring storms moved across southwestern Montana in April, bringing welcomed rain showers in the valleys and minor amounts of snow in the surrounding mountains. Valley precipitation in the Beaverhead River Basin improved to 74 percent of average while mountain precipitation climbed to 107 percent of average. The welcomed moisture helped delay the irrigation demands until the first week of May. As a result, releases from Clark Canyon Dam were maintained at 35 cfs until May 1 when they were gradually increased to meet the irrigation demands.

Several years of consecutive drought had a significant affect in southwestern Montana. This area along with the Bighorn Basin in south central Montana appeared to be the worst areas in the State that was suffering from the droughts of 2000, 2001, and now 2002. The mountain snowmelt in the Beaverhead River Basin normally begins in late April or early May. However, in 2002, there were no noticeable increases in streamflows because of the lack of normal spring precipitation and the extremely dry subsoils that were quickly absorbing the snowmelt. Due to the lack of normal precipitation, upstream irrigation demands increased and consequently, streamflows into Clark Canyon Reservoir continued to slowly recede. By May 10, inflow to Clark Canyon had dropped to as low as 47 cfs. Because of the severe drought conditions, releases from Clark Canyon Reservoir were quickly increased in early May to meet requests for irrigation water.

Snowmelt runoff during April through July was well below normal. Inflows into Clark Canyon Reservoir averaged 123 cfs during April, 89 cfs during May, 167 cfs during June and 172 cfs during July. These resulted in respective monthly total inflows of 7,327 acre-feet, 5,486 acre-feet, 9,949 acre-feet and 10,589 acre-feet. The peak inflow for the year was recorded on July 27 at 218 cfs. The total April-July inflow to Clark Canyon was 30 percent of average totaling 33,351 acre-feet and was the 2nd lowest April-July inflow of record since construction of Clark Canyon Dam. This was only about 1 percent or 1,737 acre-feet higher than the previous record low experienced in 1989.

Precipitation in the Beaverhead River Basin continued to remain well below normal during July through September. The lack of precipitation produced heavy demands on storage out of Clark Canyon to meet the downstream irrigation demands. Storage in Clark Canyon was quickly being depleted. By the end of July, only 21,969 acre-feet of storage remained in Clark Canyon Reservoir

and continued to drop nearly 1,000 acre-feet per day. In early August, the Board of the East Bench Irrigation District met and agreed to reduce the irrigation allotments to 1.0 acre-feet per acre for Class I and II lands, and 1.3 acre-feet per acre for Class III lands. This was a difficult decision to make, since many irrigators had not yet used up their allotments and were now forced to discontinue irrigation for the season. As a result, the releases out of Clark Canyon were gradually reduced from about 600 cfs in early August to about 100 cfs by the end of August.

The majority of the storage water released from Clark Canyon Reservoir to meet the downstream irrigation demands was released during May 1 through September 7. During this time, releases averaged 437 cfs and, at one point, reached a peak for the year of 813 cfs on July 20 to satisfy the downstream water needs. The average release of 437 cfs was about 120 cfs lower than the average release experienced a year ago during this similar time period. Beginning in early May, storage in Clark Canyon declined dramatically from 89,226 acre-feet at elevation 5526.97 on May 2 to a low for the year of 11,997 acre-feet at elevation 5491.33 on August 29. This storage level was recorded as the lowest storage level ever recorded at Clark Canyon. This storage level was nearly 48,000 acre-feet below the target level of 60,000 acre-feet recommended by the Montana Fish, Wildlife and Parks as the minimum required to sustain an adequate and healthy lake fishery.

Shortly after the Labor Day Weekend, the releases were reduced to the desired fall and winter flow of 28 cfs on September 7. During August 29 through the end of the water year, Clark Canyon Reservoir slowly began refilling and ended the water year with a storage content of 16,901 cfs at elevation 5495.69. This was 14 percent of normal and 10 percent of normal full capacity. This was also 19,569 acre-feet and 11.36 feet below the end of water year 2001. East Bench Irrigation District water users received approximately 75 percent of their normal supply and Clark Canyon Water Supply Company received about 80 percent. The total annual inflow to Clark Canyon Reservoir during 2002 was 42 percent of normal, totaling 110,835 acre-feet, the second lowest annual inflow of record and 25,285 acre-feet less than experienced during the drought year of 2001. The total annual release to the Beaverhead River from Clark Canyon was 128,962 acre-feet or 46 percent of normal and was also the third lowest annual release of record since construction of the dam. This was also 32,448 acre-feet less than what was released during the drought of 2001.

Lima Reservoir is a private irrigation facility located upstream of Clark Canyon Reservoir on the Red Rock River, a tributary of the Beaverhead River. Lima Reservoir did not fill in water year 2002 and peaked at 34 percent of full capacity on May 26. The drainage area above Lima Reservoir accounts for about 25 percent of the total drainage area above Clark Canyon Reservoir.

Streamflow of the Beaverhead River at Barretts peaked at 813 cfs on July 20 due to irrigation releases from storage, but the streamflow would have peaked at 357 cfs on June 10 if Clark Canyon Reservoir would not have been controlling the releases.

Inflows to Clark Canyon Reservoir in 2002 were not large enough to have caused local flooding or flooding downstream on the Missouri River below Fort Peck Reservoir. Since construction of Clark Canyon Dam in 1964, Clark Canyon Reservoir has reduced flood damages by a total of $11,949,700.00.

Additional hydrologic and statistical information pertaining to the operation of Clark Canyon Reservoir during 2002 can be found in Table MTT5 and Figure MTG3.

Important Events - 2002

September 10: Following the 2001 irrigation season, releases from Clark Canyon to the Beaverhead River were reduced to 35 cfs to conserve storage and allow Clark Canyon Reservoir to gradually increase throughout the fall and winter.

March 29: Met with East Bench Irrigation District to discuss operation plans for remainder of the water year 2002. The April 1 mountain snowpack was 74 percent of normal and water supply forecast indicated the April-July runoff into Clark Canyon would be about 51 percent of normal. Based on this forecast, irrigation districts set reduced irrigation allotments for their water users at 1.3 acre-feet per acre for Class I & II lands and 1.6 acre-feet per acre for Class III lands.

May 2: Clark Canyon Reservoir reached a peak storage content of 89,226 acre-feet at elevation 5526.97, 88,836 acre-feet or 19.13 feet below normal full pool level.

May 1: This marked the beginning of when releases from Clark Canyon were increased to meet downstream irrigation demands.

July 20: Releases from Clark Canyon Reservoir reached a peak of 813 cfs to meet downstream water demands from the Beaverhead River.

July 27: Inflow to Clark Canyon reached a peak for the year at 218 cfs.

August 5: With storage in Clark Canyon Reservoir quickly depleting, the East Bench Irrigation District Board of Directors met and agreed to immediately reduce the irrigation allotments to 1.0 and 1.3 acre-feet per acre for Class I & II and Class III lands, respectively.

August 29: Storage in Clark Canyon Reservoir was drafted to a minimum content of 11,997 acre-feet at elevation 5491.33, the lowest storage level of record since construction of Clark Canyon Dam. This was 10 percent of full capacity and 166,065 acre-feet or 54.77 feet below normal full pool level.

September 7: Release from Clark Canyon Dam to the Beaverhead River reduced to the winter release of 35 cfs.

September 13: Release from Clark Canyon Dam to the Beaverhead River reduced to the winter release of 28 cfs.

September 26: Held a public informational meeting in Dillon to discuss the 2002 reservoir and river operations of Clark Canyon Reservoir and the Beaverhead River and also the planned fall and winter operations for water year 2003. The meeting was educational and informative and very well received.

TABLE MTT5
HYDROLOGIC DATA FOR 2002
CLARK CANYON - EAST BENCH UNIT
NEW SEDIMENT SURVEY DATA EFFECTIVE 10/1/2001

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	5470.60	1,061	1,061
TOP OF ACTIVE CONSERVATION	5535.70	124,160	123,099
TOP OF JOINT USE	5546.10	174,367	50,207
TOP OF EXCLUSIVE FLOOD CONTROL	5560.40	253,442	79,075

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF **YEAR**	5507.05	36,470	OCT 01, 2001
END OF YEAR	5495.69	16,901	SEP 30, 2002
ANNUAL LOW	5491.33	11,997	AUG 29, 2002
ANNUAL HIGH	5526.97	89,226	MAY 02, 2002
HISTORIC HIGH	5564.70	283,073	JUN 25, 1984

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	110,835	OCT 01-SEP 02	128,962	OCT 01-SEP 02
DAILY PEAK (CFS)	218	JUL 27, 2002	813	JUL 20, 2002
DAILY MINIMUM (CFS)	47	MAY 10, 2002	28	SEP 19, 2002
DAILY FLOW AT BARRETTS (CFS)	813			JUL 20, 2002
DAILY FLOW AT BARRETTS W/O CLARK CANYON RESERVOIR (CFS)	357			JUN 10, 2002
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	9.6	41	2.2	14	42.4	34
NOVEMBER	11.4	51	2.1	14	51.7	39
DECEMBER	11.1	58	2.2	15	60.6	44
JANUARY	10.1	63	2.2	18	68.6	49
FEBRUARY	9.1	63	1.9	18	75.8	54
MARCH	10.3	55	2.1	19	83.9	57
APRIL	7.3	34	2.1	15	89.1	56
MAY	5.5	20	22.5	73	72.1	43
JUNE	9.9	28	31.6	75	50.4	30
JULY	10.6	38	39.1	82	22.0	15
AUGUST	8.9	46	18.8	46	12.1	9
SEPTEMBER	7.0	35	2.2	10	16.9	14
ANNUAL	110.8	42	129.0	46		
APRIL-JULY	33.4	30				

* Average for the 1965-2002 period.

TABLE MTT3
PERCENT OF AVERAGE PRECIPITATION
2002 VALLEY PRECIPITATION

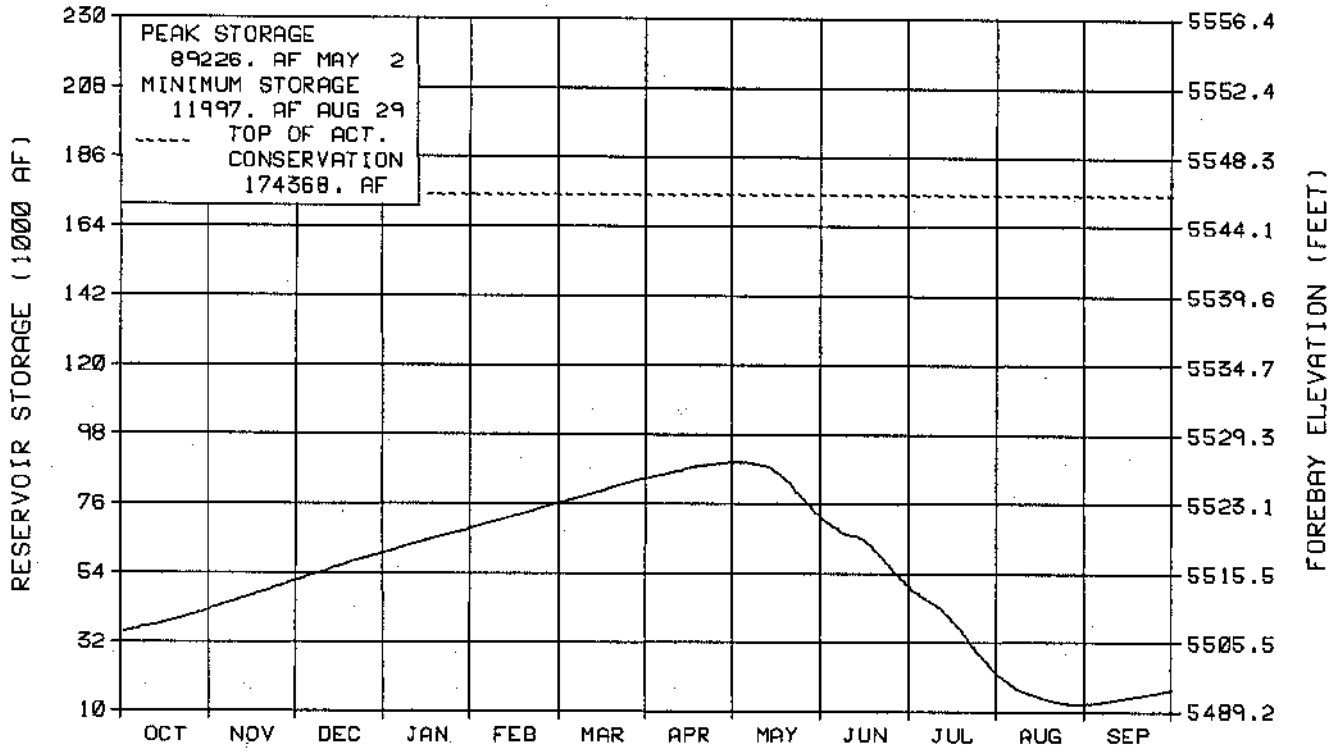
BASIN	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Beaverhead												
Monthly % of Average	41	106	38	168	77	67	74	35	113	68	87	123
Year-to-Date % of Average	41	64	58	78	78	76	75	61	73	73	74	79
Jefferson												
Monthly % of Average	76	79	51	109	79	61	61	59	121	76	91	93
Year-to-Date % of Average	76	77	71	79	79	75	72	68	80	80	81	82
Madison												
Monthly % of Average	139	62	93	67	64	54	112	75	67	29	61	69
Year-to-Date % of Average	139	96	95	88	84	78	83	82	79	75	74	73
Gallatin												
Monthly % of Average	107	16	87	144	76	26	47	125	173	101	128	
Year-to-Date % of Average	107	69	73	86	85	72	66	82	100	100	102	93
Missouri Above Toston												
Monthly % of Average	110	60	83	84	68	55	84	77	115	63	83	72
Year-to-Date % of Average	110	85	84	84	81	76	78	77	85	82	82	81
Sun-Teton												
Monthly % of Average	21	58	68	107	140	154	88	67	126	61	125	112
Year-to-Date % of Average	21	40	50	65	79	90	90	85	92	89	93	94
Marias												
Monthly % of Average	21	104	1	44	115	102	49	99	230	85	118	161
Year-to-Date % of Average	21	53	38	40	50	62	59	74	121	116	116	120
Milk												
Monthly % of Average	39	30	1	52	82	123	24	72	179	128	230	98
Year-to-Date % of Average	39	36	25	31	39	55	48	56	92	98	113	111
St. Mary												
Monthly % of Average	93	43	49	140	165	305	132	131	96	57	81	65
Year-to-Date % of Average	93	66	60	81	95	118	120	122	118	111	108	105
Bighorn Above Yellowtail												
Monthly % of Average	37	58	37	66	67	128	59	20	0	0	0	0
Year-to-Date % of Average	37	44	43	47	50	67	64	50	41	36	33	30

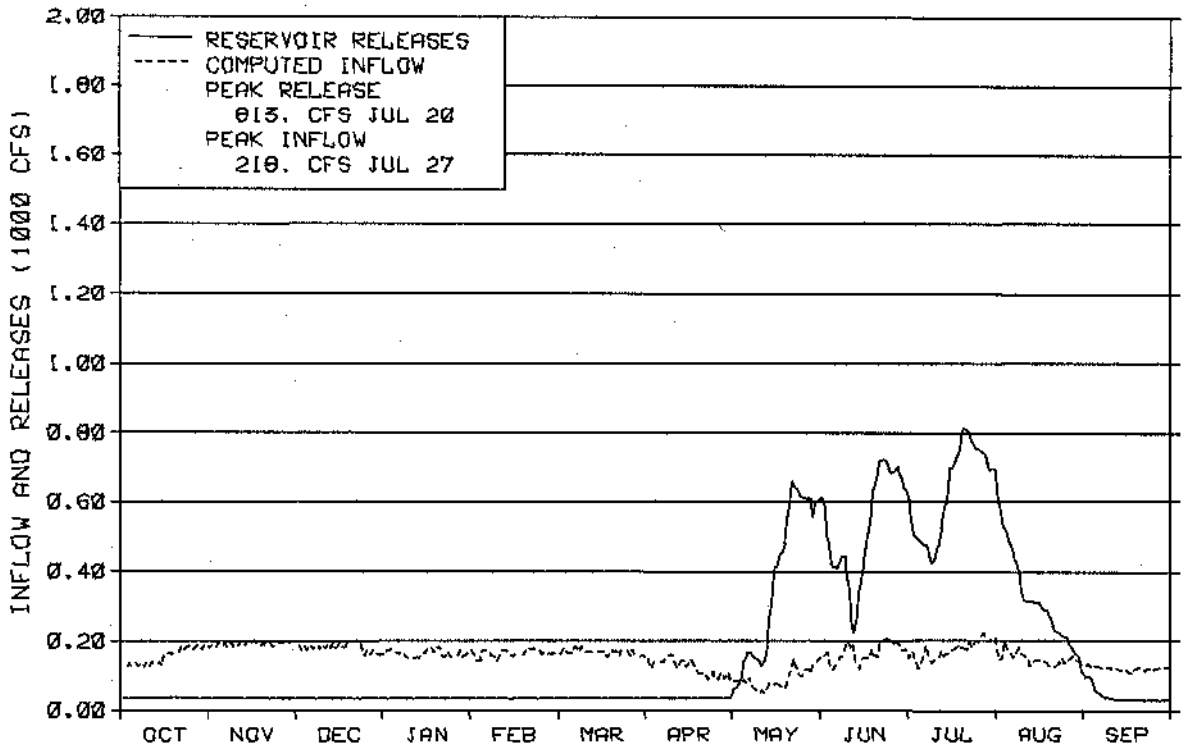
2002 MOUNTAIN PRECIPITATION

BASIN	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Lima Resevoir												
Monthly % of Average	110	87	133	71	57	54	93	54	82	43	51	81
Year-to-Date % of Average	110	97	110	99	91	84	85	81	81	78	76	77
Clark Canyon Reservoir												
Monthly % of Average	126	70	96	81	65	64	107	69	103	52	58	65
Year-to-Date % of Average	126	94	95	91	86	82	85	82	85	82	81	80
Jefferson Drainage												
Monthly % of Average	140	64	89	79	59	72	99	86	124	73	81	73
Year-to-Date % of Average	140	95	93	89	83	81	84	84	88	87	87	86
Madison Drainage												
Monthly % of Average	143	84	116	84	65	74	96	81	102	45	58	97
Year-to-Date % of Average	143	108	111	103	95	91	91	90	91	89	87	88
Gallatin Drainage												
Monthly % of Average	148	53	88	81	89	63	64	99	91	51	61	65
Year-to-Date % of Average	148	96	93	90	89	84	80	84	84	83	81	80
Canyon Ferry Reservoir												
Monthly % of Average	142	69	99	82	66	73	95	86	114	65	72	79
Year-to-Date % of Average	142	99	99	94	88	85	87	86	89	88	87	86
Gibson Reservoir												
Monthly % of Average	102	29	52	99	116	172	119	103	194	59	105	101
Year-to-Date % of Average	102	59	56	69	79	95	98	99	109	106	106	105
Lake Elwell Reservoir												
Monthly % of Average	127	34	65	112	113	176	127	109	220	68	80	90
Year-to-Date % of Average	127	70	68	82	89	103	106	107	117	115	112	111
Sherburne Reservoir												
Monthly % of Average	192	50	87	137	118	139	118	114	165	56	72	83
Year-to-Date % of Average	192	97	93	106	108	113	113	113	118	114	112	111
Bighorn Lake												
Monthly % of Average	137	76	63	83	71	111	109	71	45	90	84	72
Year-to-Date % of Average	137	104	90	88	85	90	94	90	84	85	85	83

FIGURE MTG3

CLARK CANYON RESERVOIR





WATER YEAR 2002

Canyon Ferry Lake and Powernlant

Canyon Feny Lake (P-S MBP), formed by Canyon Ferry Dam, is located on the Missouri River near Helena, Montana. It has a total capacity of 1,992,977 acre-feet. The top 3 feet were allocated to exclusive flood control in February 1966. The next 27 feet are allocated to joint conservation and flood control purposes. The joint-use space will be evacuated for flood control purposes only to the extent that refill during the spring runoff is reasonably assured. The conservation space was constructed mainly for power generation and to provide replacement storage for several new irrigation developments located on the Missouri River and its tributaries above Great Falls, Montana. To date, however, the conservation storage has been used primarily for power production. The only new areas under irrigation are 5,000 acres being irrigated on the Crow Creek Unit (P-S MBP), 13,900 acres on the Helena Valley Unit (P-S MBP), and 20,300 acres on the East Bench Unit (P-S **MBP).** In addition, about 5,200 acres in the Helena Valley Unit that were once irrigated by pumping from Lake Helena and from other streams, are now irrigated by pumping from Canyon Ferry Reservoir. About 28.000 acres on the East Bench Unit also receives a supplemental water supply. A small amount of municipal water is also furnished to the city of Helena, Montana, through facilities for the Helena Valley Unit.

In 1997, a hydrographic and a topographic survey was conducted and a new elevation-area-capacity table and curve was developed. The 1997 survey determined that Canyon Ferry Lake has a storage capacity of 1,992,977 acre-feet and a surface area of 34,048 acres at reservoir elevation 3800. Since closure in 1953, the reservoir has accumulated a sediment volume of 59,746 acre-feet below reservoir elevation 3800. This volume represents a 2.91 percent loss in capacity and an average annual loss of 1,345.6 acre-feet. The revised area-capacity table was put into effect on October 1, 1998, reflecting the new storage levels.

The drought of 2001 maintained a firm grip on Montana and had a severe impact on the inflow to Canyon Ferry Lake. With essentially no precipitation falling during August and September, the National Weather Service reported record low amounts of precipitation throughout much of Montana. Inflow to Canyon Ferry during August and September totaled 77,223 acre-feet and 100,815 acre-feet respectively and were 45 and 47 percent of normal, respectively. The August inflow to Canyon Ferry Lake was the fourth lowest of record while the September inflow was the second lowest of record since construction of Canyon Ferry Dam.

After experiencing near record low inflow to Canyon Ferry during May, releases from Canyon Ferry Lake continued to be maintained at rates that would sustain flows in the Missouri River below Holter Dam between 3,000-3,200 cfs during June through September. As a result, storage in Canyon Ferry Lake slowly declined throughout the summer to 1,394,598 acre-feet at elevation 3781.24 by the end of water year 2001.

With the exception of October, fall precipitation in the Missouri River Basin above Canyon Ferry Reservoir was well below normal, contributing to below normal streamflows. Valley precipitation during October was 110 percent of average while the mountain precipitation was 142 percent of average. During the remainder of the year, with the exception of June, monthly precipitation above Canyon Ferry was below normal. Moderate rains during June contributed to the June precipitation to be about 115 percent of average. During the remaining months, the monthly precipitation averaged about 75 percent of normal.

The lingering effects of the droughts of 2000 and 2001 continued to have a significant impact on the streamflows to Canyon Ferry Lake during water year 2002. The annual inflow to Canyon Ferry was 61 percent of average, totaling 2,407,012 acre-feet. Inflow to Canyon Ferry during October through December was 63 percent of normal, totaling 526,881 acre-feet. This was the lowest October-December inflow of record and was 111,409 acre-feet less than reported during the drought year of 2001. To conserve storage, releases from Canyon Ferry to the Missouri River averaged 2,900 cfs during October through December, allowing storage to slowly refill to 1,406,231 acre-feet at elevation 3781.64 on December 13. Storage for this time of year was 82 percent of normal. The total October-December release from Canyon Ferry marked the lowest release of record since construction of the dam at 62 percent of average.

Mountain snowfall during the winter of 2001-2002 was moderate and remained near 80 percent of normal throughout the entire winter. On January 1, the Natural Resources and Conservation Service (NRCS) measured the mountain snowpack in the Missouri River Basin above Canyon Ferry to be 84 percent of average as compared to 80 percent of normal a year ago. Snowpack in the Jefferson, Madison, and Gallatin River Basins, major tributaries of the Missouri River Basin was 76, 95 and 92 percent of normal, respectively. As the winter proceeded, mountain snowfall rates declined slightly and by April 1, mountain snowpack in the Missouri River Basin had dropped to 80 percent of normal, as compared to 61 percent of normal a year ago. Snowpack in the tributaries of the Jefferson, Madison, and Gallatin River Basins reported 77, 84 and 84 percent of normal as compared to 63, 56 and 62 percent of normal a year ago. These snowpack conditions were an early indication that the drought of 2002 was somewhat relieved from that experienced in 2001 but still considered to be severe as far as water management decisions were concerned

With storage in Canyon Ferry Lake at 86 percent of normal on January 1 and mountain snowpack at 84 percent of normal, water supply forecasts indicated releases out of Canyon Ferry Lake would continue to be maintained at rates that would maintain flows in the Missouri River downstream of Holter Dam between 2,800-3,000 cfs. This would conserve storage in Canyon Ferry Lake and allow it to slowly refill during the winter in preparation for the summer drought. Inflow to Canyon Ferry during January through March was 74 percent of normal, totaling 524,299 acre-feet and was the lowest of record. Coupled with the October-December inflow, this made the October-March inflow also the lowest of record at 68 percent of average, totaling 1,051,181 acre-feet. During January through March the total release from Canyon Ferry was 521,106 acre feet, 59 percent of average and also the lowest of record. By March 31 storage in Canyon Ferry Lake had slowly filled to a content of 1,396,340 acre-feet at elevation 3781.30. This was 96 percent of normal for this time of year. Combined with the October-December total release, the total October-March release was a record low amount at 60 percent of normal totaling 1,049,439 acre-feet.

By April 1, the drought was still maintaining a strong grip on Montana. Cool temperatures in April and May and the low mountain snowpack delayed the beginning of the normal spring runoff into Canyon Ferry Lake. It was not until mid to late May that the mountain snowmelt runoff began into Canyon Ferry and by late June it appeared to be essentially over. Streamflows at many locations around the State were at record low levels and continued to remain well below normal throughout the remainder of the year. Inflow to Canyon Ferry Lake rose from about 2,235 cfs on May 15 to a peak for the year of 16,414 cfs on June 3 before slowly receding to 1,536 cfs on July 31. During this time, releases out of Canyon Ferry were adjusted to maintain river flows downstream of Holter Dam between 2,800-3000 cfs. As a result, storage steadily increased from 1,416,473 acre-feet at elevation 3781.99 on May 21 to the peak content for the year of 1,874,912 acre-feet at elevation 3796.49 on July 8. This peak storage content was 16,976 acre-feet and 0.51 feet below the top of the joint-use pool and 99 percent of full capacity.

The April-July runoff into Canyon Ferry totaled 1,142,935 acre-feet. At 56 percent of normal, this was 304,969 acre-feet higher than that experienced during the drought of 2001. Because of the near record low inflows to Canyon Ferry Lake, releases from Canyon Ferry were closely regulated to maintain river flows downstream of Holter Dam between 2,800-3,000 cfs, in an effort to conserve storage in Canyon Ferry Lake. The amount of water released from Canyon Ferry to the Missouri River during April-July was 42 percent of normal, totaling 647,265 acre-feet and was the second lowest amount ever released from Canyon Ferry during April-July, and 46,024 acre-feet less than released in 2001.

The drought of 2002 refused to let up and during August and September, minimal amounts of precipitation fell in the Missouri River Basin. Valley precipitation was recorded at 83 and 72 percent of average, respectively, while mountain precipitation was 72 and 79 percent of average, respectively. As the mountain snowmelt slowly declined, inflow to Canyon Ferry likewise slowly receded to a low for the year of 1,221 cfs on August 3. Since the construction of Canyon Ferry Dam and Reservoir in 1954, this was the sixth lowest inflow of record recorded for this date. Inflow to Canyon Ferry during August and September totaled 91,108 acre-feet and 121,788 acre-feet, respectively, and were 53 and 57 percent of normal, respectively. The August inflow to Canyon Ferry Lake was the eighth lowest of record while the September inflow was the fourth lowest of record since construction of Canyon Ferry Dam.

During August and September river releases from Canyon Ferry Lake continued to be maintained at rates necessary to maintain flows in the Missouri River below Holter Dam between 2,800-3,000 cfs. As a result, storage in Canyon Ferry Lake continued to slowly draft throughout the summer to 1,687,629 acre-feet at elevation 3790.75 at year-end. This was 99 percent of normal and 9.51 feet or 293,031 acre-feet higher than at the end of water year 2001. Annual runoff into Canyon Ferry Lake totaled 2,407,012 acre-feet and was 61 percent of normal. This was 137,292 acre-feet more than experienced during the drought year of 2001 and is the fourth lowest annual inflow to Canyon Ferry Lake since construction of the dam.

During 2002, Canyon Ferry powerplant generated 229,171,000 kilowatt-hours, the second lowest since construction of the powerplant. This was 58 percent of the long-term average and 17,752,000 kilowatt-hours less than generated in 2001. The plant used 91 percent of the water released from the dam in 2002. The remainder of the water released was to meet the irrigation needs of the Helena Valley Irrigation District (182,457 acre-feet) and spilled through the river outlet works and spillway (6,813 acre-feet) to allow for scheduled maintenance outages at Canyon Ferry Dam and Powerplant and flushing of the spillway stilling basin at Canyon Ferry Dam and Powerplant.

The Corps of Engineers estimated that during 2002, Canyon Ferry prevented $509,400 in local flood damages and also prevented $2,210,100 in flood damages downstream on the Missouri River below Fort Peck Reservoir for a total of $2,719,500. Since construction of the Canyon Ferry Dam in 1954, Canyon Ferry Reservoir has reduced flood damages by a total of $136,317,800.

Important Events - Water Year 2002

October 1: All irrigation deliveries to the Helena Valley Unit were discontinued for the 2001 irrigation season. To continue conserving storage in Canyon Ferry, turbine releases were adjusted to maintain river flows in the Missouri River downstream of Holter Dam at 2,800 cfs.

October 9: With a river release of 2,685 cfs out of Canyon Ferry, PPL-MT reported difficulty in maintaining stable levels in Hauser and Holter Reservoirs while maintaining river flows downstream of Holter Dam above 2,800. In response, turbine releases to the Missouri River were increased by 200 cfs to 2,885 cfs.

April 9-September 30: Irrigation deliveries to Helena Valley Unit were initiated on April 9 and adjusted periodically throughout the irrigation season to meet the irrigation demands. Because of the low snowpack and persistent dry weather conditions, as irrigation deliveries to the Helena Valley Project were increased, turbine releases were decreased by proportionate amounts to rates no lower than required to maintain minimum river flows between 2,800-3,000 cfs below Holter Dam.

April 15-19: Releases out of Canyon Ferry were adjusted dramatically to flush sediment and debris out of the stilling basin downstream of the spillway gates and allow for underwater inspection of the basin. On April 15 beginning at 0900 hour, releases through the gated spillway were increased and maintained at 28,000 cfs for 3 hours. On April 18, beginning at 0900 hour and 1400 hour, releases through the river outlet gates were increased and maintained at 2,000 cfs and 5,000 cfs respectively for one hour. On April 18, beginning at 0900 hour and 1400 hour, releases through the river outlet gates were increased and maintained at 7,500 cfs and 9,500 cfs, respectively, for one hour. To assist in these special operations and accommodate the large release changes out of Canyon Ferry, PPL-MT scheduled operational changes at their downstream powerplant facilities to minimize fluctuations in the river flows. Following the spillway flush on April 19, PPL-MT requested increasing releases out of Canyon Ferry to assist them in refilling Hauser and Holter Reservoirs.

April 17: Reclamation attended and participated in the Upper Missouri River Advisory Group meeting held in Helena, Montana, in the Lee Metcalfe Building. Tim Felchle, Chief of Reservoir and River Operations, presented the water supply outlook for the upper Missouri River Basin and the proposed operations for Canyon Ferry for 2002.

April 22: PPL-MT reported difficulty in refilling Hauser and Holter Reservoirs. At their request, river releases out of Canyon Ferry were increased by 200 cfs.

April 25: PPL-MT reported that Hauser and Holter Reservoirs were essentially full. At their request, river releases out of Canyon Ferry were reduced by 200 cfs.

May 6: Low elevation snows began melting, causing inflow to Canyon Ferry to slowly increase. In an effort to conserve storage in Canyon Ferry, river releases were reduced by 150 cfs while maintaining river flows below Holter Dam no lower than 2,800 cfs.

May 17: Cooler temperatures slowed the mountain snowmelt runoff. At the request of PPL-MT, river releases out of Canyon Ferry were increased by 100 cfs to prevent the storage levels of Hauser and Holter Reservoirs from dropping while maintaining river flows below Holter Dam no lower than 2,800 cfs.

May 20: PPL-MT reported that Hauser and Holter Reservoirs were essentially full. At their request, river releases out of Canyon Ferry were reduced by 200 cfs to conserve storage in Canyon Ferry while maintaining river flows below Holter Dam no lower than 2,800 cfs.

May 22-23: PPL-MT reported recent precipitation is keeping Hauser and Holter Reservoirs essentially full or higher than desired. At their request, river releases out of Canyon Ferry were reduced by 400 cfs to conserve storage in Canyon Ferry while maintaining river flows below Holter Dam no lower than 2,800 cfs.

May 29: Cool temperatures once again slowed the tributary flows to Hauser and Holter Reservoirs. At the request of PPL-MT, the river releases out of Canyon Ferry were increased by 200 cfs to prevent the reservoir levels of Hauser and Holter Reservoirs from dropping while maintaining river flows below Holter Dam no lower than 2,800 cfs.

June 19: The snowmelt runoff was essentially over, causing Hauser and Holter Reservoirs to decrease. At the request of PPL-MT, the river releases out of Canyon Ferry were increased by 250 cfs to prevent the reservoir levels of Hauser and Holter Reservoirs from dropping while maintaining river flows below Holter Dam no lower than 2,800 cfs.

June 21: The snowmelt runoff was essentially over, causing Hauser and Holter Reservoirs to decrease. At the request of PPL-MT, the river releases out of Canyon Ferry were increased by 100 cfs to prevent the reservoir levels of Hauser and Holter Reservoirs from dropping while maintaining river flows below Holter Dam no lower than 2,800 cfs.

June 28: Tributary flows to Hauser and Holter Reservoirs continue to decline. At the request of PPL-MT, river releases from Canyon Ferry were increased by 150 cfs to prevent the reservoir levels of Hauser and Holter Reservoirs from dropping while maintaining river flows below Holter Dam no lower than 2,800 cfs.

July 3: PPL-MT reported that Hauser and Holter Reservoirs were essentially full. At their request, river releases out of Canyon Ferry were reduced by 200 cfs to conserve storage in Canyon Ferry while maintaining river flows below Holier Dam no lower than 2,800 cfs.

September 20: Recent flow measurements downstream of Holter Dam indicated river flows were actually lower than anticipated. In cooperation with PPL-MT, river releases were increased to maintain river flows below Holter Dam near 3,000 cfs.

October 1: All irrigation deliveries to the Helena Valley Unit were discontinued for the 2002 irrigation season. To continue conserving storage in Canyon Ferry, turbine releases were maintained at rates that maintained river flows downstream of Holter Dam near 3,000 cfs.

Additional statistical information of Canyon Ferry Reservoir and its operations during 2002 can be found on Table MTT6 and Figure MTG4.

TABLE MTT6
HYDROLOGIC DATA FOR 2002
CANYON FERRY RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	3728.00	396,031	396,031
TOP OF ACTIVE CONSERVATION	3770.00	1,097,599	701,568
TOP OF JOINT USE	3797.00	1,891,888	794,289
TOP OF EXCLUSIVE FLOOD CONTROL	3800.00	1,992,977	101,089

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	3781.24	1,394,598	OCT 01, 2001
END OF YEAR	3790.75	1,687,629	SEP 30, 2002
ANNUAL LOW	3780.66	1,377,848	OCT 13, 2001
ANNUAL HIGH	3796.49	1,874,912	JUL 08, 2002
HISTORIC HIGH	3800.00	2,050,900	JUN 23, 1964

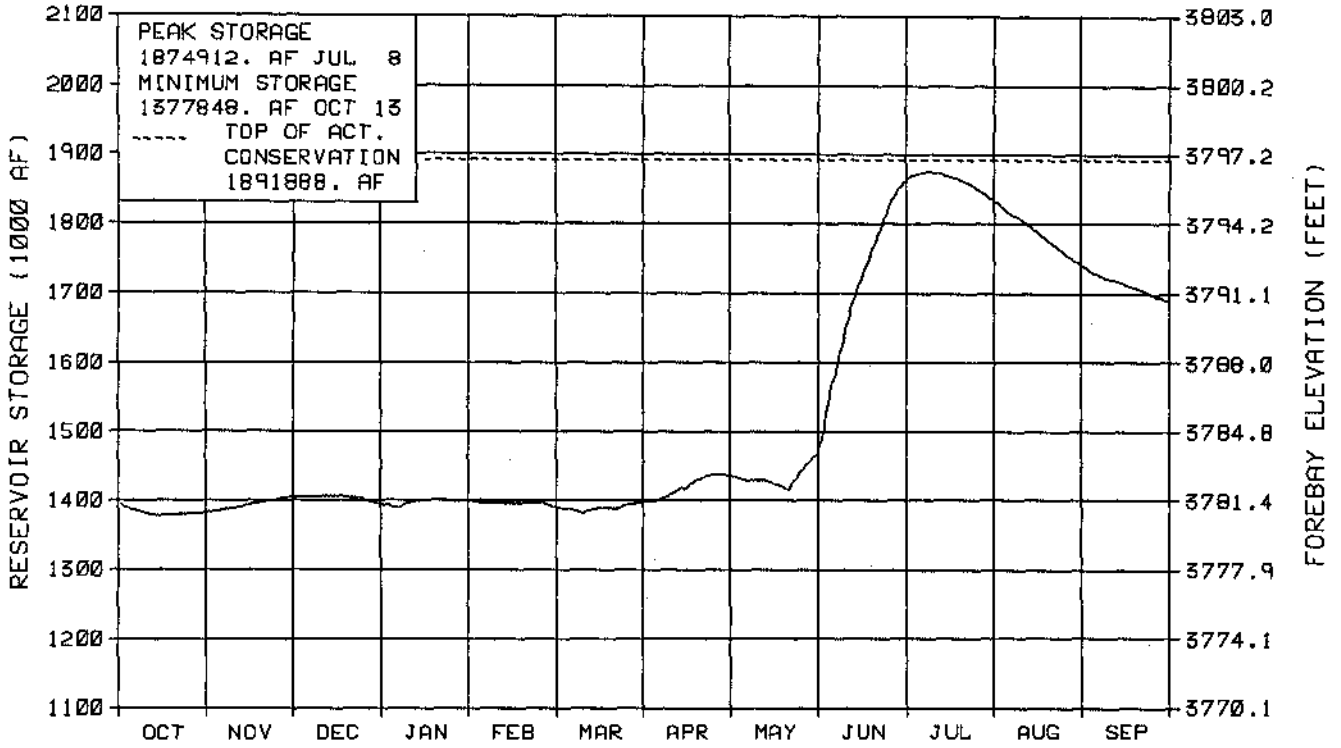
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	2,407,012	OCT 01-SEP 02	2,113,981	OCT 01-SEP 02
DAILY PEAK (CFS)	16,414	JUN 3, 2002	5,970	APR 15, 2002
DAILY MINIMUM (CFS)	1,221	AUG 3, 2002	2,149	JUN 13, 2002
PEAK SPILL (CFS)			3,435	APR 15, 2002
TOTAL SPILL (AF)			6,813	APR 15, 2002

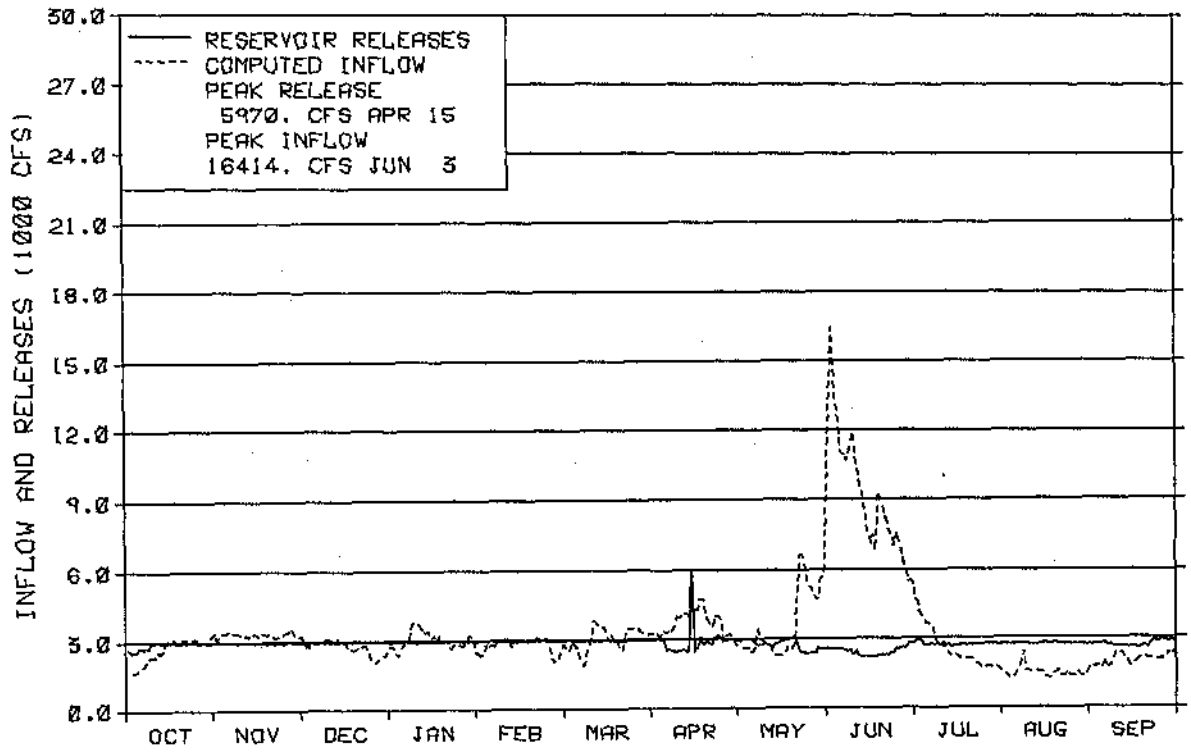
	INFLOW		OUTFLOW*				CONTENT	
MONTH	KAF	% OF AVG	PUMPED TO HELENA VALLEY (KAF)	% OF AVG	RIVER KAF	% OF AVG	KAF	% OF AVG
OCTOBER	163.8	57	0.1	14	175.5	66	1,382.7	80
NOVEMBER	195.5	66	0	---	173.1	62	1,405.1	80
DECEMBER	167.6	69	0	---	179.5	59	1,393.1	83
JANUARY	183.6	83	0	---	179.3	59	1,397.5	89
FEBRUARY	154.9	70	0	---	162.1	59	1,390.3	92
MARCH	185.8	69	0	---	179.7	59	1,396.3	96
APRIL	218.5	63	7.5	138	171.4	55	1,435.9	98
MAY	218.5	38	16.9	136	167.6	45	1,470.0	90
JUNE	548.0	71	15.0	100	143.0	29	1,860.0	98
JULY	157.9	47	19.4	118	165.3	45	1,833.2	100
AUGUST	91.1	53	19.0	127	167.1	65	1,738.2	101
SEPTEMBER	121.8	57	11.5	157	161.3	68	1,687.6	99
ANNUAL	2,407.0	61	89.4	122	2,024.9	54		
APRIL-JULY	1,142.9	56						

* Average for the 1955-2002 period.

FIGURE MTG4

CANYON FERRY LAKE





WATER YEAR 2002

Helena Valley Reservoir

Helena Valley Reservoir is a regulating offstream reservoir for Helena Valley Unit **(P-S MBP),** located west of Canyon Ferry. It has a total capacity of 10,451 acre-feet, which is used for irrigation and for furnishing a supplemental municipal supply to the city of Helena, Montana. Helena Valley Reservoir receives its entire water supply by pumping from Canyon Ferry Reservoir. When fully developed, Helena Valley Unit will irrigate about 14,100 acres of full-service land plus 3,500 acres of supplemental-service lands. Present development is about 13,867 full-service acres, including 5,200 acres previously irrigated by pumping from Lake Helena or from other streams.

At the beginning of the year, storage in Helena Valley Reservoir was 6,741 acre-feet at an elevation of 3811.75 feet. Helena Valley Reservoir reached a low for the year of 5,391 acre-feet at an elevation of 3807.80 feet on March 28, 2002. Diversions to the Helena Valley Unit from Canyon Ferry Reservoir were started on April 9. Storage in Helena Valley Reservoir then steadily increased to a peak for the year of 10,383 acre-feet at an elevation of 3819.94 feet on June 10, 2002. Normal irrigation and municipal demands slowly drafted storage to 7,980 acre-feet at an elevation of 3814.85 on September 30, 2002. The reservoir provided an adequate water supply to satisfy all irrigation requirements for the Helena Valley Unit in 2002 and supplement the City of Helena's municipal water supply.

Statistical information pertaining to Helena Valley Reservoir is shown on Table MTT7 below.

TABLE MTT7
HYDROLOGIC DATA FOR 2002

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
Top of Inactive Storage	3805.00	4,554	4,554
Top of Active Conservation Storage	3820.07	10,451	5,897
STORAGE ELEVATION DATA	**ELEVATION (FEET)**	**STORAGE (AF)**	**DATE**
Beginning of Year	3811.75	6,741	10/1/01
End of Year	3814.85	7,980	9/30/02
Annual Low	3807.80	5,391	3/28/02
Annual High	3819.94	10,383	6/10/02
Historic High	3820.60	10,738	6/02/75
INFLOW-OUTFLOW DATA			**ANNUAL**
Pumped from Canyon Ferry to Helena Valley Unit			89,418 AC-FT
Inflow to Helena Valley Reservoir			76,475 AC-FT
Released from reservoir for irrigation			74,145 AC-FT
Delivered to the City of Helena for municipal use			1,090 AC-FT

Sun River Project

Storage for the Sun River Project is provided by Gibson, Willow Creek, and Pishkun Reservoirs, which are all single-purpose irrigation structures. The project serves 95,000 acres on the Greenfields and Fort Shaw Irrigation Districts. A diversion darn is located on the Sun River about 3 miles below Gibson Reservoir to allow flows to be diverted down the Pishkun Supply Canal to Pishkun Reservoir, or down the Willow Creek Feeder Canal to Willow Creek Reservoir. Releases are made from Pishkun Reservoir to supply the canals of the Greenfields Irrigation District. Releases from Willow Creek Reservoir re-enter the Sun River where they can be diverted at the Fort Shaw Diversion Dam to supply the canals of the Fort Shaw Irrigation District.

Gibson Reservoir is located on the Sun River above Augusta, Montana, and has a total capacity of 96,477 acre-feet. In 1996, a hydrographic and topographic survey was conducted to measure the reservoir volume lost due to sediment accumulations that occurred in the drainage basin since the major forest fires that occurred in 1988. As a result of the survey, a new elevation-area-capacity table and curve was developed.

The 1996 survey determined that Gibson Reservoir has a storage capacity of 96,477 acre-feet and a surface area of 1,296 acres at reservoir elevation 4724. Since closure in 1929, the reservoir has accumulated a sediment volume of 8,383 acre-feet below reservoir elevation 4724. This volume represents a 7.99 percent loss in capacity and an average annual loss of 125.7 acre-feet. The 1996 survey also showed the average annual rate of sediment deposition since 1973 was 113.1 acre-feet per year and that most of the sediment contribution came after the 1988 fires. The revised area-capacity table was developed and put into effect on October 1, 1997, reflecting the new storage levels.

The spillway crest is at elevation 4712.0 (81,255 acre-feet). Depending on the runoff conditions and reservoir levels, the spillway gates remain open during the spring until the inflows and remaining snow cover indicate that the runoff is receding. Once it is apparent that the runoff has peaked and begun to recede, the spillway gates are progressively closed to allow the reservoir to fill to the top of the conservation pool at elevation 4724.0 (96,477 acre-feet).

The drought of 2001 had lingering effects on the water supply in the Sun River Basin, heading into water year 2002. During August and September, precipitation in the Sun River watershed varied from only 5 and 47 percent of average respectively in the valley to 6 and 30 percent of average respectively in the mountains. The August-September inflow to Gibson Reservoir was 62 percent of average, totaling 28,333 acre-feet. Total release from Gibson Reservoir was gradually reduced during the month of September from 200 cfs to 110 cfs. With the inflows averaging 190 cfs and releases averaging 155 cfs during September, storage in Gibson Reservoir slowly filled and entered water year 2002 with a storage content of 7,666 acre-feet

at elevation 4616.65. This was 27 percent of normal and only 8 percent of full capacity and 88,811 acre-feet or 107.35 feet below the top of the conservation pool. Storage at the beginning of water year 2002 was 629 acre-feet or 1.65 feet greater than at the beginning of water year 2001.

With storage in Gibson Reservoir well below normal at the end of water year 2001, and fall inflows being well below normal, reservoir operating plans indicated difficulty in filling Gibson Reservoir to a storage content of 50,000 acre-feet by the end of March. As a result, fall and winter releases from Gibson Reservoir to the Sun River were reduced on October 1 and maintained at a minimum flow rate of 50-60 cfs through May 1. By January 1, storage in Gibson Reservoir had slowly but steadily increased to 21,759 acre-feet at elevation 4645.18.

With the exception of the mountains receiving normal precipitation during October, the Sun River Basin received well below normal precipitation during November and December. By January 1, the Natural Resources and Conservation Service (NRCS) measured snowpack in the Sun-Teton River Basins at 59 percent of normal, nearly the same as a year ago. However, as the winter progressed, snowfall in the mountains above Gibson Dam continually improved and accumulated at above normal rates through April. Normally the mountain snowpack reaches peak accumulations by mid-April and begins to melt out. However, this year numerous spring storms with cool temperatures and above normal precipitation continued to maintain snowpack conditions well above normal through mid-May. By May 1, snowpack had improved to 134 percent of normal, 57 percent higher than a year ago.

Snowmelt runoff began entering Gibson Reservoir near the middle of April when streamflows gradually increased from about 130 cfs in early April to near 570 cfs by the end of April. Streamflows continued to increase moderately until reaching 4,728 cfs on May 21. Cool temperatures then delayed the snowmelt and inflows began to recede to 1,789 cfs on May 25. As the temperatures once again increased, streamflows increased to 5,937 cfs on May 30. By the end of May, the mountain snowmelt was well underway. Streamflows receded moderately as the temperature cooled a bit in early June, and by June 12, inflows to Gibson Reservoir had dropped to 2,732 cfs. Then a large storm system moved into northern Montana on June 9-10, bringing with it heavy precipitation and cooler temperatures. The National Weather Service (NWS) reported as much as 8-10 inches of rain in certain areas of northern and northwestern Montana. This storm system touched the northern portion of the Sun River Basin causing inflows to Gibson Reservoir to increase to a peak for the year at 6,208 cfs on June 17. As the inflows increased, the releases from Gibson Reservoir to the Sun River were gradually increased to control the rate of fill in storage. On June 23, Gibson Reservoir reached a peak storage content for the year of 96,477 acre-feet at elevation 4724.00, the top of the active conservation pool. The peak discharge to the Sun River was recorded on May 31 at 4,416 cfs.

As the storm system began to move out and the snowmelt runoff gradually receded, streamflows gradually receded to 3,187 cfs by June 30. Precipitation received in the Sun River Basin during June varied from 126 percent of average in the valley to as high as 194 percent of average in the mountains. Even though much of the moisture was being quickly absorbed by the dry soil conditions, the inflow into Gibson Reservoir still improved from only 70 percent of average in May to 117 percent of average in June. June was the only

month of water year 2002 that inflows were reported above normal. Immediately following the large storm system in early June, the rains essentially ended and the July precipitation returned to well below normal. Valley precipitation was 61 percent of average while the mountain precipitation was only 59 percent of average. Normally the snowmelt runoff into Gibson Reservoir is essentially over by the middle of June. However, the cool temperatures in June delayed the snowmelt runoff by about 2 weeks later than normal. As a result, inflow to Gibson Reservoir had dropped considerably but remained at 97 percent of average during July. This resulted in the actual April-July inflow to be 92 percent of average, totaling 441,244 acre-feet.

Precipitation in the Sun River Basin improved during August and September. Valley precipitation increased to 118 percent of average while mountain precipitation increased to 103 percent of average. However, the lingering effects of the past three years of drought were still having an effect on the runoff into Gibson Reservoir. The August-September inflow to Gibson Reservoir was 84 percent of average totaling 38,339 acre-feet. As releases were made to meet downstream irrigation demands, storage in Gibson Reservoir slowly declined to a low content of 21,163 acre-feet at elevation 4644.15. Beginning on September 13, releases from Gibson Dam to the Sun River were gradually reduced to about 65 cfs allowing storage to gradually fill to 26,208 acre-feet at elevation 4652.54 by the end of the water year. This was 94 percent of average and only 27 percent of full capacity or 70,269 acre-feet or 71.46 feet below the top of the conservation pool. Storage at the end of water year 2002 was 18,542 acre-feet or 35.89 feet higher than at the end of water year 2001.

Total annual inflow for water year 2002 was 85 percent of normal, totaling 524,878 acre-feet. This was 193,224 acre-feet or 31 percent greater than the inflow experienced during water year 2001.

Diversions to the Pishkun Supply Canal were started on April 13 and were adjusted periodically throughout the year to meet the downstream irrigation demands on the Sun River Project. After meeting the operational objectives of attaining adequate carry-over storage in the three main regulating reservoirs, all diversions to the Pishkun Supply Canal were discontinued for water year 2002 on September 13.

Even though there is no space allocated to flood control, the Corps of Engineers still estimates flood damages that are prevented by Gibson Reservoir. During 2002 Gibson Reservoir did not contribute to the reduction of flood damages locally or downstream on the Missouri River below Fort Peck Reservoir.

Additional hydrologic and statistical data pertaining to the operation of Gibson Reservoir can be found in Table MTT8-A and Figure MTGS.

Pishkun Reservoir, near Augusta, Montana, is an off-stream reservoir supplied by a feeder canal which diverts water from the Sun River below Gibson Reservoir. The reservoir serves the 81,000-acre Greenfields Division. The total capacity of the reservoir is 46,670 acre-feet at elevation 4370.0.

All canal diversions from the Sun River to Pishkun during the 2001 irrigation season were discontinued on August 12, 2001, about a month earlier than normal. Reservoir content in Pishkun at the beginning of water year 2002 was 37,624 acre-feet at elevation 4363.71. This was about 114 percent of average and about 81 percent of full capacity and 1,202 acre-feet or 0.93 feet higher than at the beginning of water year 2001.

Norma] reservoir losses throughout the winter and early spring caused storage to slowly decline to 36,190 acre-feet at elevation 4369.12 on April 29. Diversions from the Sun River to Pishkun Reservoir began on April 13, increasing storage to a peak for the year of 46,980 acre-feet at elevation 4370.19 on August 27. Irrigation releases from Pishkun Reservoir were started on May 4 with a maximum release of 1,672 cfs recorded on July 1. Approximately 235,716 acre-feet of water was released from Pishkun Reservoir during May 4 through September 24 to help meet the irrigation demands on the Sun River Project, which was 91 percent of average. All diversions from the Sun River to Pishkun Reservoir were discontinued on September 13. All irrigation releases from Pishkun Reservoir were discontinued a week later on September 24. By the end of the water year 2002, irrigation demands had slowly drafted storage in Pishkun Reservoir to a content of 3 6,8 10 acre-feet at elevation 4363.08. This was 112 percent of normal and 79 percent of full capacity. This was also 814 acre-feet or 0.63 feet lower than at the end of water year 2001.

Additional hydrologic and statistical data pertaining to Pishkun Reservoir can be found in Table MTT8-B and Figure MTG6.

Willow Creek Reservoir obtains its water supply from Willow Creek and the Sun River via the Willow Creek Feeder Canal. The total reservoir capacity is 32,300 acre-feet at elevation 4142.0 feet. Releases from Willow Creek Reservoir enter the Sun River and can be diverted for irrigation at the Fort Shaw Diversion Dam, the Floweree Canal of the Broken 0 Ranch, and other downstream senior water users.

All diversions from the Sun River to Willow Creek during the 2001 irrigation season were discontinued on August 12, 2001, about a month earlier than normal. Reservoir content in Willow Creek at the beginning of water year 2002 was 13,852 acre-feet at elevation 4127.02. This was 77 percent of average and 43 percent of full capacity and 3,615 acre-feet or 3.63 feet lower than at the beginning of water year 2001.

Storage in Willow Creek Reservoir remained fairly stable and with a slight increase throughout the winter. Diversions from the Sun River to Willow Creek Reservoir during 2002 were initiated on April 14 at a rate of about 135 cfs and were eventually increased to a peak of 196 cfs in late May and early June. About April 15, the diversions began to reach Willow Creek Reservoir and storage began to steadily increase to a peak storage content for the year of 33,095 acre-feet at elevation 4142.53 on June 25. This storage level was 114 percent of normal and was at 100 percent of full capacity. As a result, all diversions from the Sun River to Willow Creek were discontinued for the year on June 24. To help meet irrigation demands within the Sun River Irrigation Projects a release of 50 cfs was initiated from Willow Creek Reservoir on July 18 and maintained near this rate through September 2. Approximately 4,564 acre-feet of storage was released from Willow Creek Reservoir during July 18 through September 2 to help meet the irrigation demands in 2002. As a result, storage was slowly drafted to 27,673 acre-feet at elevation 4138.73 on September 2. Willow Creek Reservoir remained fairly constant through the remainder of the year and ended the year with a storage content of 27,700 acre-feet at elevation 4138.75. This was 154 percent of average and 86 percent of full capacity. This was also 13,848 acre-feet or 11.73 feet lower than at the end of water year 2001.

Additional hydrologic and statistical data pertaining to Willow Creek Reservoir can be found in Table MTT8-C and Figure MTG7.

TABLE MTT8-A
HYDROLOGIC DATA FOR 2002
GIBSON RESERVOIR (SUN RIVER PROJECT)

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4557.50	0	0
TOP OF ACTIVE CONSERVATION	4724.00	96,477	96,477

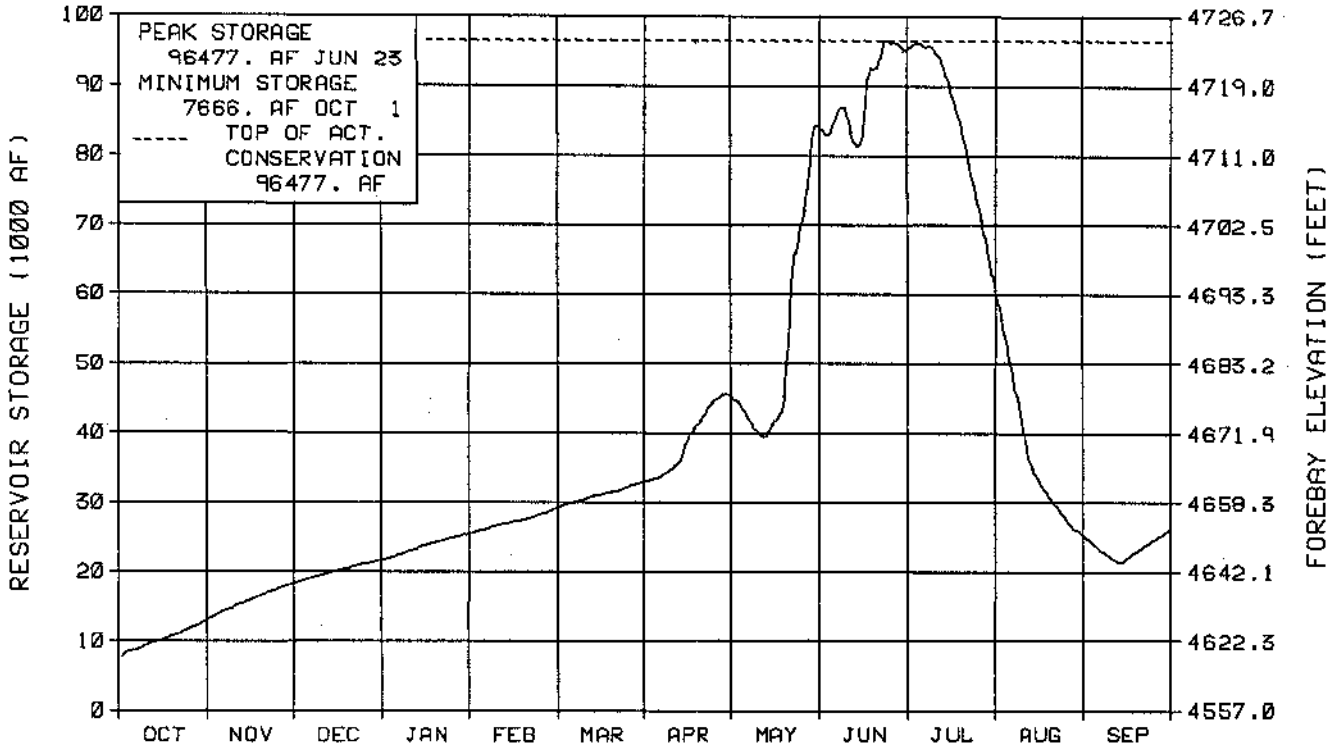
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4616.65	7,666	OCT 01, 2001
END OF YEAR	4652.54	26,208	SEP 30, 2002
ANNUAL LOW	4616.65	7,666	OCT 01, 2001
ANNUAL HIGH	4724.00	96,477	JUN 23, 2002
HISTORIC HIGH	4732.23	116,400	JUN 08, 1964

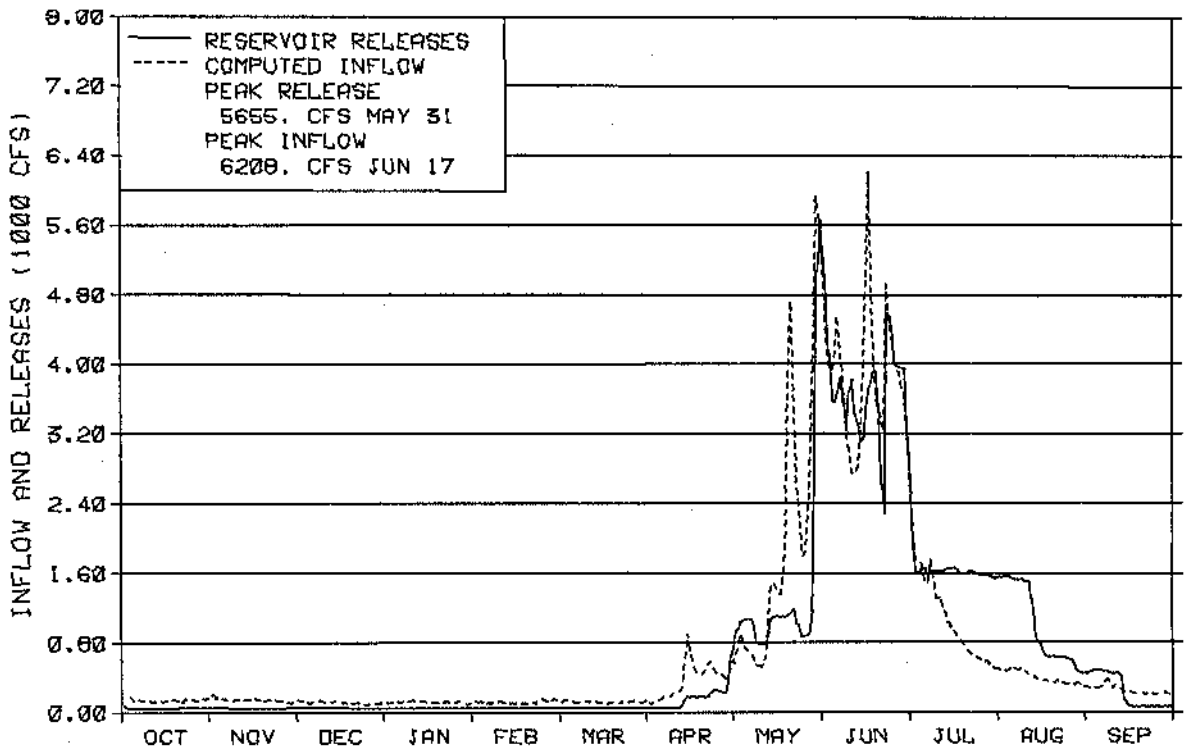
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	524,878	OCT 01-SEP 02	506,336	OCT 01-SEP 02
DAILY PEAK (CFS)	6,208	JUN 17, 2002	5,655	MAY 31, 2002
DAILY MINIMUM (CFS)	84	APR 02, 2002	50	DEC 19, 2001

MONTH	INFLOW		OUTFLOW*				CONTENT	
	KAF	% OF AVG	TOTAL CANAL KAF	% OF AVG	RIVER KAF	% OF AVG	KAF	% OF AVG
OCTOBER	9.0	48	0	---	4.3	42	13.1	44
NOVEMBER	8.7	50	0	---	4.2	36	18.3	53
DECEMBER	6.9	44	0	---	4.2	36	21.8	57
JANUARY	7.1	52	0	---	3.9	39	25.7	62
FEBRUARY	6.3	52	0	---	3.6	44	29.0	65
MARCH	7.2	50	0	---	4.1	41	32.9	69
APRIL	22.2	55	7.0	82	10.2	43	45.5	85
MAY	119.7	70	56.3	146	37.9	38	84.0	99
JUNE	232.7	117	59.2	105	167.7	123	95.1	107
JULY	66.7	97	84.5	120	21.4	78	60.6	104
AUGUST	23.8	90	55.5	137	7.4	53	25.1	75
SEPTEMBER	14.6	76	10.5	89	4.9	47	26.2	94
ANNUAL	524.9	85	274.0	118	273.8	73		
APRIL-JULY	441.3	92						

* Average for the 1931-2002 period.

FIGURE MTG5
GIBSON RESERVOIR





WATER YEAR 2002

TABLE MTT8-B
HYDROLOGIC DATA FOR 2002
PISHKUN RESERVOIR (SUN RIVER PROJECT)

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4342.00	16,250	16,250
TOP OF ACTIVE CONSERVATION	4370.00	46,670	30,420

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4363.71	37,624	OCT 01, 2001
END OF YEAR	4363.08	36,810	SEP 30, 2002
ANNUAL LOW	4356.51	29,006	JUL 25, 2002
ANNUAL HIGH	4370.19	46,980	AUG 27, 2002
HISTORIC HIGH	4371.40	48,950	JUL 04, 1953

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	234,903	OCT 01-SEP 02	235,716	OCT 01-SEP 02
DAILY PEAK (CFS)	1,424	AUG 07, 2002	1,672	JUL 01, 2002
DAILY MINIMUM (CFS)	0	*	0	*

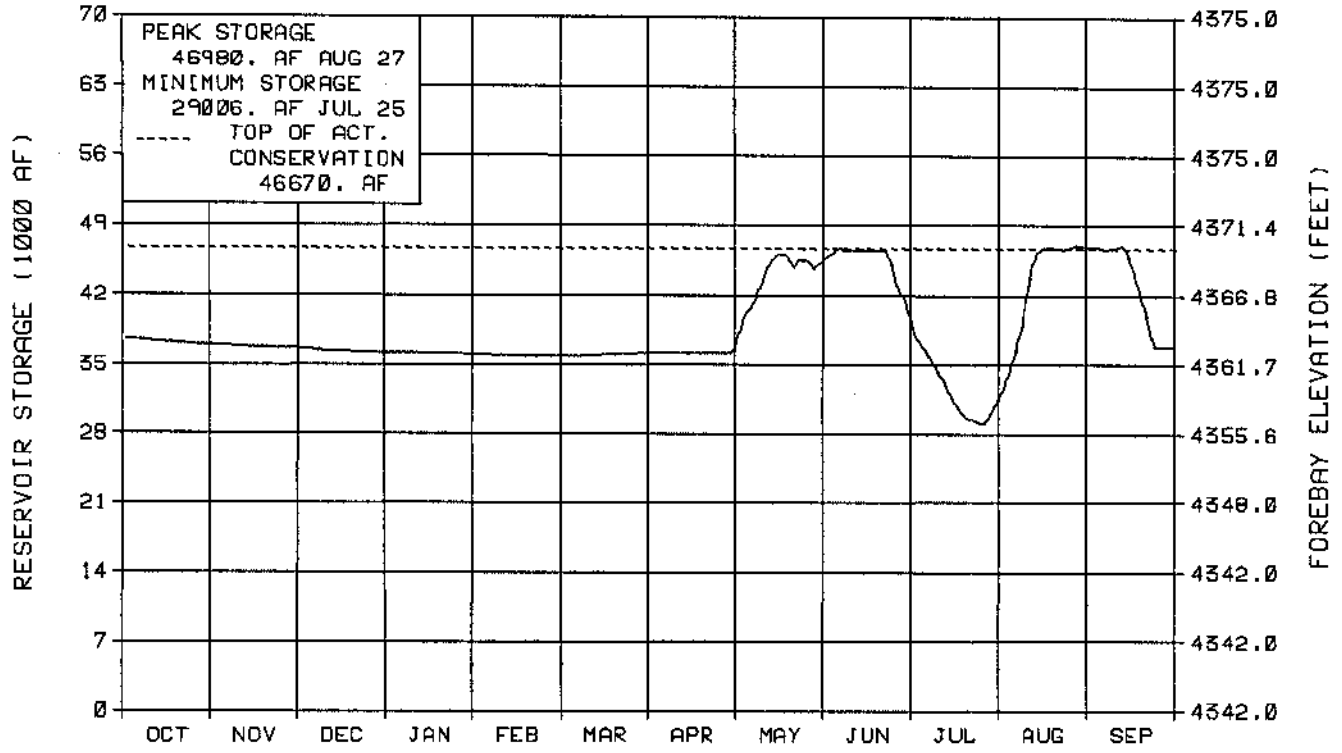
* During nonirrigation season

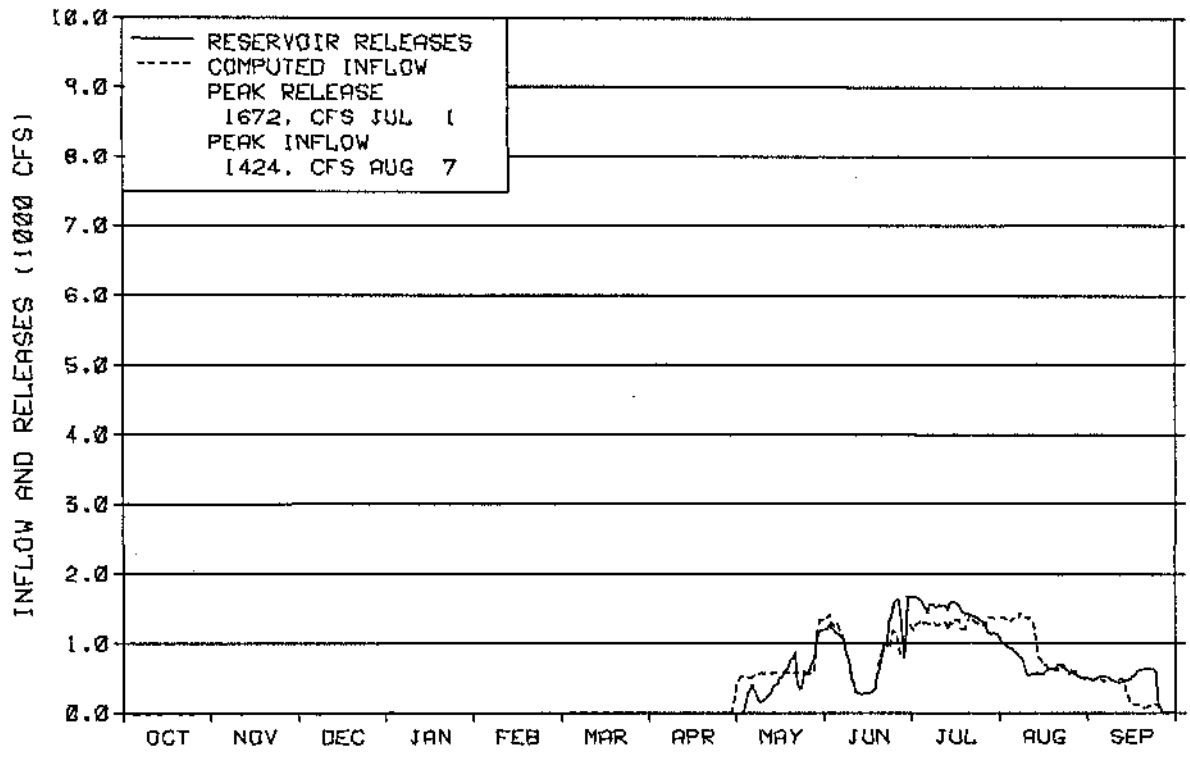
MONTH	INFLOW*		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	-0.7	---	0	---	37.0	108
NOVEMBER	-0.4	---	0	---	36.6	106
DECEMBER	-0.3	---	0	---	36.2.	105
JANUARY	-0.2	---	0	---	36.0	105
FEBRUARY	-0.2	---	0	---	35.9	105
MARCH	0.3	120	0	---	36.2	106
APRIL	0.2	3	0	---	36.4	90
MAY	38.5	108	29.5	98	45.4	99
JUNE	48.8	85	54.0	89	40.1	94
JULY	79.3	116	87.9	121	31.5	84
AUGUST	55.7	132	40.3	92	46.8	133
SEPTEMBER	13.8	106	23.9	150	36.8	112
ANNUAL	234.9	103	235.7	104		
APRIL-JULY	166.8	99				

* Average for the 1947-2002 period.

FIGURE MTG6

PISHKUN RESERVOIR





WATER YEAR 2002

TABLE MTT8-C
HYDROLOGIC DATA FOR 2002
WILLOW CREEK RESERVOIR (SUN RIVER PROJECT)

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4085.28	67	67
TOP OF ACTIVE CONSERVATION	4142.00	32,300	32,233

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4127.02	13,852	OCT 01, 2001
END OF YEAR	4138.75	27,700	SEP 30, 2002
ANNUAL LOW	4126.95	13,785	OCT 12, 2001
ANNUAL HIGH	4142.53	33,095	JUN 25, 2002
HISTORIC HIGH	4144.00	35,300	JUN 22, 1975

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	18,412	OCT 01-SEP 02	4,564	OCT 01-SEP 02
DAILY PEAK (CFS)	247	JUN 10, 2002	66	JUL 22, 2002
DAILY MINIMUM (CFS)	0	*	0	*

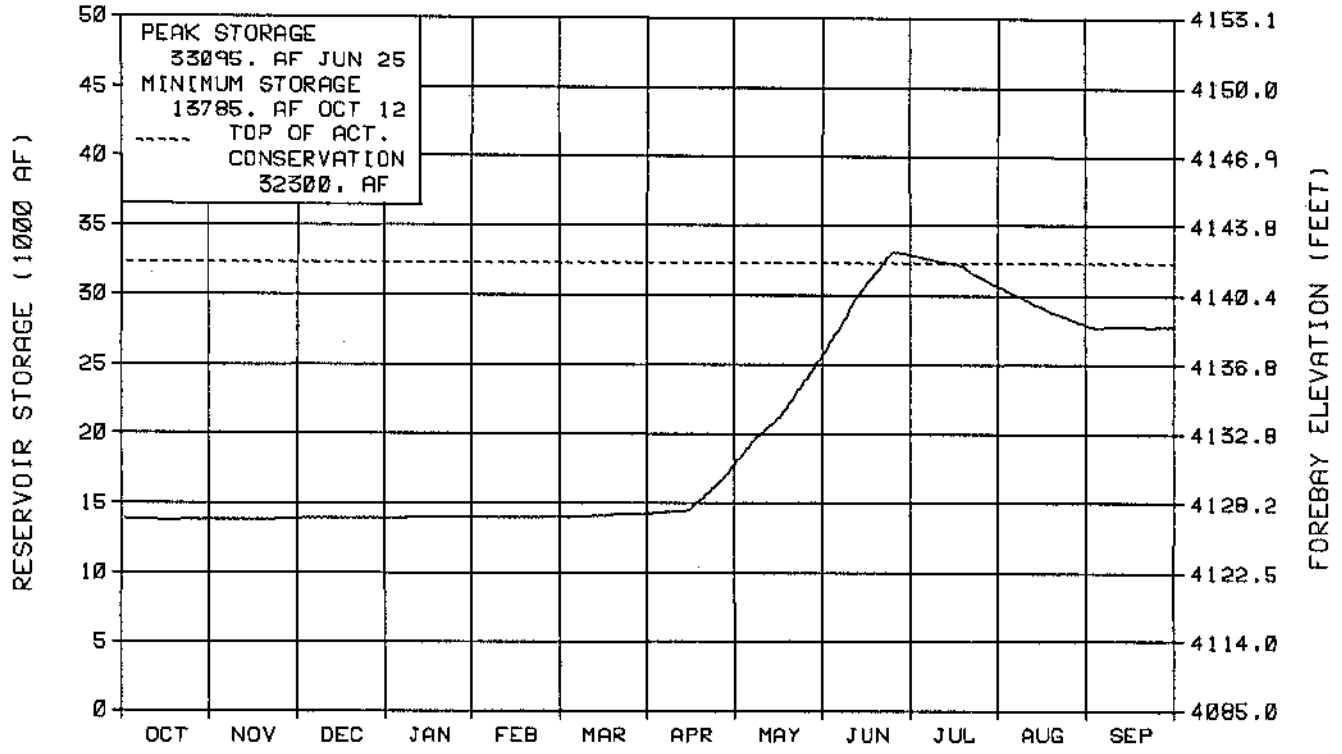
* During nonirrigation season

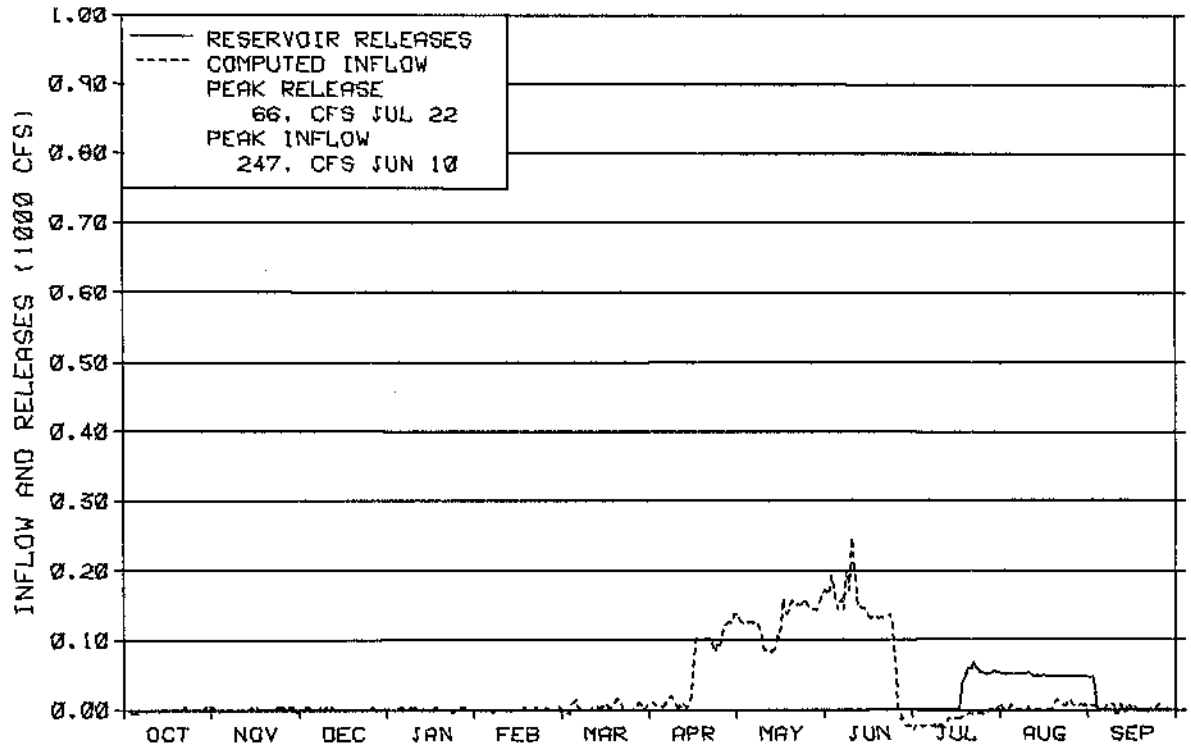
MONTH	INFLOW*		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	0.0	---	0	---	13.8	71
NOVEMBER	0.1	10	0	---	13.9	69
DECEMBER	0.1	16	0	---	14.0	68
JANUARY	0.1	16	0	---	14.0	67
FEBRUARY	0.0	0	0	---	14.0	66
MARCH	0.2	24	0	---	14.3	64
APRIL	3.4	170	0	---	17.6	72
MAY	8.0	193	0	---	25.6	91
JUNE	7.3	171	0	---	32.9	113
JULY	-0.8	---	1.5	28	30.6	128
AUGUST	0.2	---	3.0	82	27.8	145
SEPTEMBER	0.0	10	0.1	18	27.7	154
ANNUAL	18.4	124	4.6	31		
APRIL-JULY	17.8	161				

* Average for the 1952-2002 period.

FIGURE MTG7

WILLOW CREEK RESERVOIR





WATER YEAR 2002

Lake Elwell (Tiber Dam)

Lake Elwell (Tiber Dam) (P-S M.B.P.) is located on the Marias River near Chester, Montana. It was built to provide an adequate water supply for 127,000 acres in the Lower Mari as Unit and for flood control. The crest section of Tiber Darn spillway began settling in 1956, following initial filling of the reservoir. Restrictions were placed on reservoir operating levels in the late 1950s to safeguard the structure until repairs could be made. The settling continued despite attempts to halt it. The rate of settlement was alarming following the flood of 1964 and the heavy runoff of 1965. This settlement was attributed to a weakness of the underlying shale formation in which small lenses of gypsum were slowly being dissolved as water passed through the shale. Measures to protect the structure were approved by Congress, and construction was initiated in 1967. This work, completed in 1970, consisted of modifying the canal outlet works for use as an auxiliary outlet works and closing the entrance channel of the spillway by a temporary earthfill cofferdam. To accommodate these changed conditions, the reservoir operating criteria was further revised and the active capacity was eliminated. Work on modification of the spillway to restore active conservation capacity was begun in 1976. This work, completed in October 1981, consisted of replacing the upstream section of the spillway and raising the dam 5 feet. Since that time, all restrictions on operating levels were lifted and normal operations were restored at Lake Elwell.

Because the irrigation distribution works have not yet been constructed, the reservoir is operated primarily for flood control and for increased fishery and recreation benefits. However, the reservoir provides irrigation water to several individual operators by water service contracts and provides about 1,500 acre-feet to the Tiber County Water District for municipal, industrial, rural domestic, and livestock use. The city of Chester, Montana, receives a small amount of water from the reservoir annually for municipal use. Approximately 3,000 acres are irrigated by contract from Lake Elwell storage.

Precipitation in the Marias River Basin above Lake Elwell was well below normal during August and September of 2001. Valley Precipitation was recorded at 14 and 36 percent of average, respectively, while mountain precipitation was 6 and 33 percent of average, respectively. Inflow to Lake Elwell began to recede in late June of 2001 and continued to drop throughout the summer. By August 1, upstream demands and evaporation caused inflow to be less than zero. Inflow into Lake Elwell during August-September totaled -8,230 acre-feet, the lowest inflow ever recorded during this time.

After experiencing near record low inflow during water year 2001 and maintaining releases to the Marias River at 320 cfs, Lake Elwell continued to slowly draft throughout the summer and entered water year 2002 with a storage content of 743,441 acre-feet at an elevation of 2979.12. This was 90 percent of normal and 3.27 feet or 48,635 acre-feet lower than at the beginning of water

year 2001. Annual runoff into Lake Elwell during water year 2001 totaled 203,948 acre-feet and was 30 percent of normal. This is the second lowest annual inflow to Lake Elwell since construction of the dam, and only 10,374 acre-feet more than the lowest annual runoff of 193,573 acre-feet that occurred in 1977.

Water year 2002 started off very dry with precipitation in the Marias River basin upstream of Lake Elwell being well below normal during October through December of 2001. Valley precipitation during this time was 21, 104, and 1 percent of normal, respectively, while the mountain precipitation was 127, 34, and 65 percent of normal, respectively. The residual effects of the drought of 2001 still had a significant impact on the streamflows to Lake Elwell. Inflow into Lake Elwell during October through December was 6 percent of normal, totaling 3,483 acre-feet. This was 8,924 acre-feet less than the previous low experienced during water year 2001.

During the winter of 2001-2002, mountain snowpack in the Marias Basin above Lake Elwell accumulated at near normal rates during October, but by January 1 the Natural Resources and Conservation Service (NRCS) measured the mountain snowpack in the Marias River Basin above Lake Elwell to be only 63 percent of average, basically the same that was reported on January 1 of the previous year. The January 1 water supply forecast, based on mountain snowpack, indicated the April-July runoff into Lake Elwell would be 219,200 acre-feet, only 45 percent of normal. In early January, after discussions with MFWD, releases from Lake Elwell were reduced to 250 cfs to conserve storage in Lake Elwell and allow it to remain at a fairly constant level during the remainder of the winter. As a result, storage in Lake Elwell slowly drafted to a low content for the year of 673,018 acre-feet at elevation 2974.06 on April 1.

As the winter progressed, mountain snowfall began increasing at normal to above normal rates and by April 1, mountain snowpack in the Marias River Basin had improved to 112 percent of normal, as compared to 54 percent of normal in 2001. The April 1 water supply forecast indicated the April-July runoff into Lake Elwell would be 411,000 acre-feet or 85 percent of normal. Above normal temperatures during the first two weeks in April caused the snowmelt runoff to begin and inflow into Lake Elwell increased to 2,362 cfs on April 16. The second half of April brought cold temperatures with additional mountain snow showers and reduced snow melt runoff. In response to the much improved snowpack conditions, releases were increased to 320 cfs.

Mountain snowpack continued to accumulate and by May 1, the NRCS reported mountain snowpack in the Marias River Basin had improved to 131 percent of normal. The May 1 water supply forecast indicated the May-July runoff into Lake Elwell would be 396,000 acre-feet or 94 percent of normal. Snow storms in early May added good moisture to the Marias River Basin, causing snowpack to continue to accumulate until reaching a peak for the year on May 9. To control the rate of fill and provide adequate space to store the above average snowmelt runoff, releases were increased to 550 cfs on May 19.

Rain and snow storms during June contributed to the valley precipitation being 230 percent of average and the mountain precipitation was 220 percent of normal. Inflow into Lake Elwell during June totaled 396,454 acre-feet which was 207 percent of average and the third highest June inflow since construction of Tiber Dam. Inflow into Lake Elwell reached a peak for the year of 17,317 cfs on June 11, 2002. Lake Elwell storage entered the exclusive flood pool on June 13. Releases were

adjusted to control the rate of fill until reaching a peak for the year of 5,297 cfs on June 23, 2002. Storage steadily increased until reaching the peak content for the year of 1,019,705 acre-feet at elevation 2995.86 on June 27, 2002. All storage was evacuated from the exclusive flood pool on July 12. To control the rate of drawdown, releases were gradually reduced to 1,100 cfs on July 29.

Actual April-July runoff into Lake Elwell totaled 684,063 and was 141 percent of the long-term average. This was the sixth highest inflow ever recorded during this time since construction of Lake Elwell.

During July through September, the monthly precipitation in the valley was above average but the mountain precipitation was only 80 percent of average. Inflow into Lake Elwell during July-September totaled 156,774 acre-feet and was 160 percent of average, the fourth highest ever recorded during this time.

By the end of the year, normal operations of Lake Elwell drafted storage to 862,374 acre-feet at elevation 2986.84. This was 105 percent of normal, 7.73 feet higher than reported on September 30, 2001, and the fourth highest end of September elevation ever reported at Lake Elwell. Annual runoff into **Lake** Elwell totaled 766,629 acre-feet and was 114 percent of normal. This was 562,681 more than experienced during the drought year of 2001.

The Corps of Engineers determined that during 2002, **Lake** Elwell reduced local flood damages by $70,200 and prevented an additional $1,027,500 in flood damages downstream on the Missouri River below Fort Peck Reservoir for a total of $1,097,700. Since closure of Tiber Dam in 1954, Lake Elwell has reduced flood damages by a total of $57,190,100.00.

Important Events - 2002

December **1,** 2001: Natural Resources and Conservation Service measured snowpack conditions in the watershed above Lake Elwell to be about 50 percent of normal.

January 1, 2002: Natural Resources and Conservation Service measured snowpack conditions in the watershed above Lake Elwell to be about 63 percent of normal.

January 2, 2002: Releases are discontinued from the river outlet works and initiated at 320 cfs through the auxiliary outlet works to allow for staff gages to be installed in the stilling basin below the river outlet works.

January 3, 2002: Releases are discontinued from the auxiliary outlet works and returned to the river outlet works at a rate of 320 cfs.

January 4, 2002: Flows are gradually increased from 320 cfs to 700 cfs to obtain readings from newly installed staff gages. In coordination with **MFWD,** flows are gradually reduced to 250 cfs to conserve storage.

April **1,** 2002: Natural Resources and Conservation Service measured snowpack conditions in the watershed above Lake Elwell to have increased to 112 percent of normal. Water supply forecast

indicated the April-July runoff into Lake Elwell would be 411,000 acre-feet or 85 percent of normal. Lake Elwell reaches a low for the year with 673,018 acre-feet of storage at elevation 2974.06.

April 16, 2002: Personnel from the Reservoir and River Operations Branch met with the Marias Management Committee to discuss the projected water supply for the Marias River Basin. In response to the improved snow pack conditions, releases were increased to 320 cfs to allow downstream irrigation to begin.

May 6, 2002: Flows are discontinued from the river outlet works and initiated at a rate of 320 cfs through the auxiliary outlet works to allow Tiber MT LLC to do work on river outlet prior to pressure testing.

May 9, 2002: Snow pack improved to 165 percent of normal. Increase releases to 430 cfs to control rate of fill.

May 13-14, 2002: To control rate of fill, releases are increased to 520 cfs.

May 21, 2002: River outlet gates are pressure tested at 320 cfs and 700 cfs. After tests are completed, releases are returned to auxiliary outlet works so work can be performed on river outlet gate seals.

May 28, 2002: Repairs are completed on river outlet gate seals. Discontinue releases from auxiliary outlet works and initiate through the river outlet works to provide appropriate water temperature downstream in river.

June 11-13, 2002: Heavy rains caused inflow to reach peak for the year of 17,317 cfs. Storage enters the exclusive flood pool. To control rate of fill, releases are increased to 4,450 cfs.

June 18-23, 2002: Spillway gates are opened and releases are increased to a peak for the year of 5,297 cfs.

June 27, 2002: Storage reaches a peak content for the year of 1,019,705 acre-feet at elevation 2995.86.

July 9-29, 2002: Releases are gradually reduced to 1,100 cfs control drawdown.

July 12, 2002: All storage is evacuated from the exclusive flood pool.

Additional hydrologic and statistical information pertaining to the operation of Lake Elwell during 2002 can be found in Table MTT9 and Figure MTGS.

TABLE MTT9
HYDROLOGIC DATA FOR 2002
LAKE ELWELL (TIBER DAM)

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2966.40	577,625	577,625
TOP OF ACTIVE CONSERVATION	2976.00	699,325	121,700
TOP OF JOINT USE	2993.00	967,319	267,994
TOP OF EXCLUSIVE FLOOD CONTROL	3012.50	1,368,157	400,838

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2979.12	743,441	OCT 01, 2001
END OF YEAR	2986.84	862,374	SEP 30, 2002
ANNUAL LOW	2974.06	673,018	APR 01, 2002
ANNUAL HIGH	2995.86	1,019,705	JUN 27, 2002
HISTORIC HIGH	3005.59	1,214,417	JUL 12, 1965

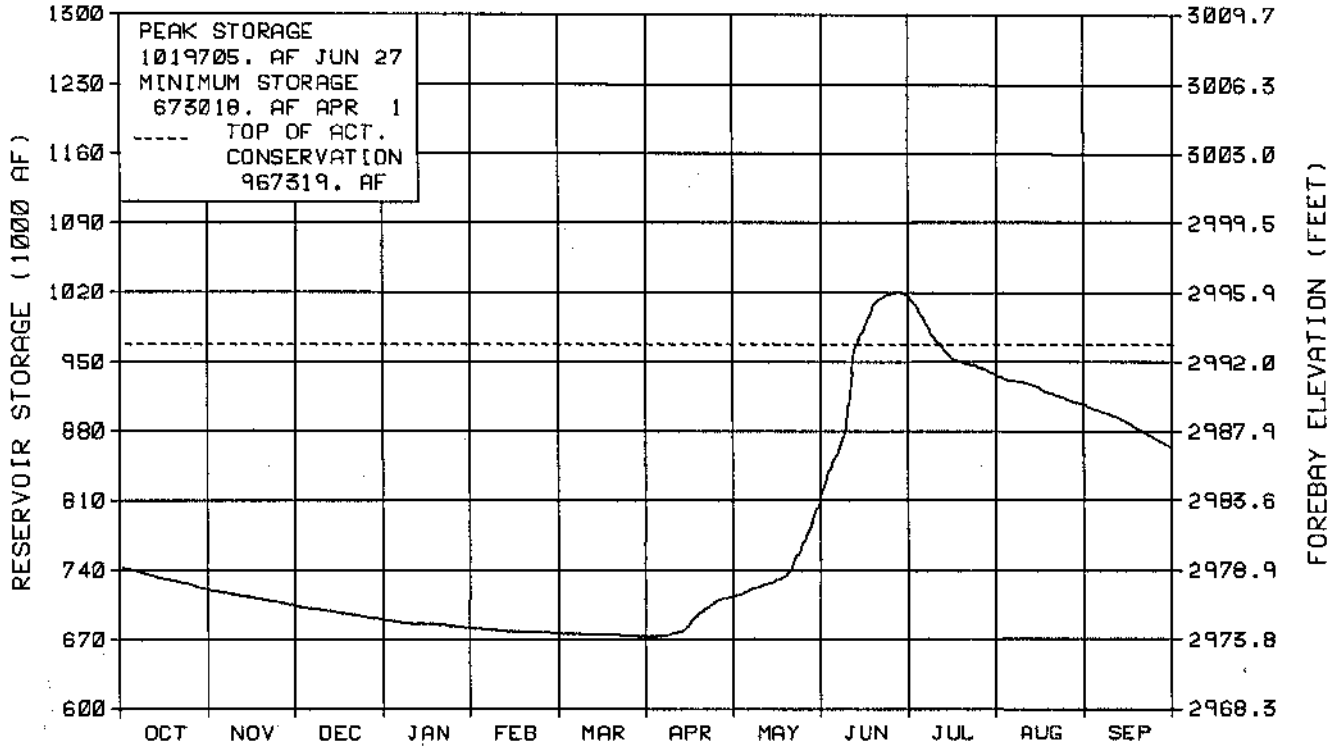
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	766,629	OCT 01-SEP 02	2647,625	OCT 01-SEP 02
DAILY PEAK (CFS)	17,317	JUN 11, 2002	5,297	JUN 23, 2002
DAILY MINIMUM (CFS)	0	10/01-10/30/2001	228	APR 01, 2002
PEAK SPILL (CFS)			1,500	JUN 27, 2002
TOTAL SPILL (AF)			65,851	6/18/02-7/11/02

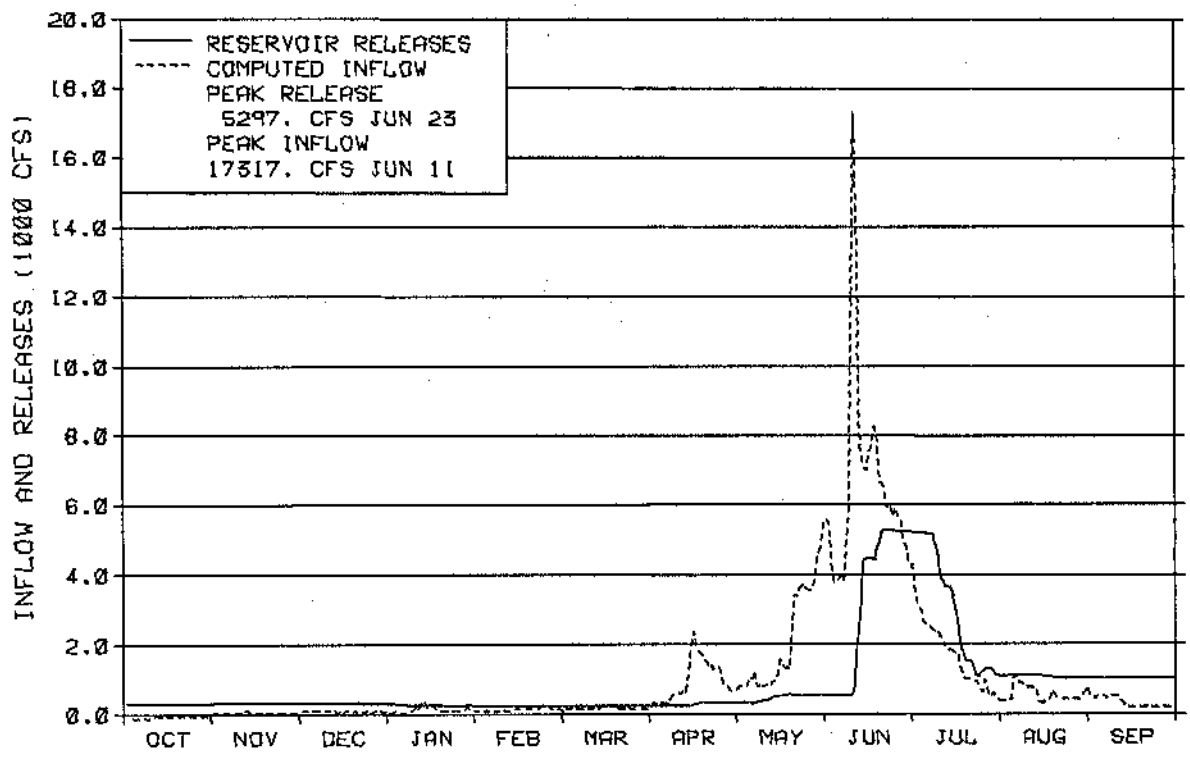
MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	-4.6	---	18.8	41	720.0	92
NOVEMBER	2.9	13	19.4	53	703.5	92
DECEMBER	5.3	28	19.5	70	689.3	93
JANUARY	7.7	47	15.4	61	681.6	95
FEBRUARY	7.9	36	13.1	53	676.4	97
MARCH	11.1	22	14.3	40	673.2	95
APRIL	55.6	88	16.0	34	712.7	97
MAY	127.7	76	28.3	40	812.0	97
JUNE	396.5	207	192.3	187	1016.2	105
JULY	104.4	167	184.3	229	936.3	99
AUGUST	34.5	177	65.6	106	905.2	102
SEPTEMBER	17.9	112	60.7	113	862.4	105
ANNUAL	766.6	114	647.6	106		
APRIL-JULY	684.1	141				

* Average for the 1957-2002 period.

FIGURE MTG8

LAKE ELWELL





WATER YEAR 2002

Milk River Project

The 120,000-acre Milk River Project, located in north-central Montana, is served by Sherburne, Fresno, and Nelson Reservoirs. Sherburne and Nelson Reservoirs are single-purpose irrigation structures. Fresno Reservoir has joint-use flood control space, provides a municipal water supply to several municipalities on or near the project, and serves as the primary irrigation storage structure for the Milk River Project. Approximately 101,500 acres are presently served by irrigation districts, 9,500 acres are served by private facilities; and between 5,000 and 6.000 acres are served supplemental water by the Ft. Belknap Indian Irrigation Project.

Sherburne Reservoir is located in Glacier National Park on Swiftcurrent Creek, a tributary of the St. Mary River in the Hudson Bay Drainage Basin. Lake Sherburne has a total capacity of 67,854 acre-feet at elevation 4788.0. The use of boundary waters of the St. Mary and Milk Rivers are divided between Canada and the United States by the 1909 Boundary Waters Treaty. The United States utilizes its entitlement to St. Mary River water by regulating flows through storage in Lake Sherburne and diverting St. Mary River flows through the St. Mary Canal to the Milk River basin. The river outlet works have a capacity of 2,100 cfs at elevation 4788.0 feet. The maximum combined discharge of the spillway and river outlet works is 4,000 cfs at a maximum water surface elevation of 4810.0 feet.

Storage in Lake Sherburne at the beginning of the water year was 5,142 acre-feet, 50 percent of normal, at elevation 4732.8. The St. Mary Canal had been shut down prior to October 1, but some water was released from Lake Sherburne during the last week of October and first week of November to satisfy requirements under the Boundary Waters Treaty. Precipitation during October was near normal, hut accumulated valley precipitation by the end of December was only 60 percent of normal. Inflows during October were much below normal at 41 percent of normal, but November and December inflows were near normal. Mountain snowpack was 82 percent of normal by January 1 and improved to above normal by April 1. Inflows during January through March were above normal. April 1 storage was 21,690 acre-feet, 88 percent of normal. The April 1 water supply forecast for April through July runoff indicated that the runoff would be 101,000 acre-feet, 97 percent of normal.

Releases from Lake Sherburne and diversion by the St. Mary Canal were scheduled to begin on March 4 because of the low **storage in** Fresno Reservoir and low runoff expectation in the Milk River Basin. However, above average snowfall in the mountains and subzero temperatures, down to -30°F, prevented startup of the St. Mary Canal as planned. Although some water was diverted during the week of March 18`h, significant water was not diverted until the first week of April. Storage decreased until May 19 when runoff increased streamflows. Storage on May 19 was 7,190 acre-feet. Daily inflow to Lake Sherburne peaked for the year at 1,871 cfs on May 30. Diversion by the St. Mary Canal averaged 414 cfs during

April and 503 cfs during May. Releases from Lake Sherburne were reduced to about 30 cfs on May 27 to increase storage as the flow of the St. Mary River was adequate to meet the canal diversions.

Rain during June 8 through June 11 fell across much of north central Montana. The edge of this storm extended into the St. Mary River Basin with greater precipitation amount falling over the Milk River Basin. Runoff water from small drainages accumulated in the St. Mary Canal and diversions were reduced to about 200 cfs on June 8. Even with a reduction in diversion, the canal continued to flow at greater than 450 cfs for several days. The St. Mary Canal was shut down on June 19 as canal inspections found extensive land slides into the canal and damage to one of the terminal drop structures. The canal was shut down until July 25 when canal repairs were completed. The peak diversion for the year of 650 cfs occurred on June 5, just before the rainstorm.

Lake Sherburne storage peaked on July 28 at 66,698 acre-feet, only 0.69 feet below full pool level. Lake Sherburne was essentially full from the last week of June through the first week of August. The snow pack peaked on April 8 slightly earlier than the normal time, and was essentially melted during the first week of July near the normal time.

Storage on September 30, 2002, was 11,436 acre-feet, 112 percent of normal. Inflow for the water year totaled 175,604 acre-feet, 122 percent of normal.

According to preliminary data, diversions from the St. Mary River to the Milk River totaled 147,130 acre-feet, 100 percent of the long-term average. Canal diversion continued into October to improve water storage in Fresno Reservoir. The long-term average annual diversion is 147,000 acre-feet and the 1980-99 average is 178,000 acre-feet. The largest diversion previously recorded was 277,000 acre-feet during 1989.

Additional hydrologic and statistical information pertaining to the operation of Sherburne Reservoir during 2002 can be found in Table MTT10-A and Figure MTG9.

TABLE MTT10-A
HYDROLOGIC DATA FOR 2002
SHERBURNE RESERVOIR (MILK RIVER PROJECT)

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4729.30	3,061	3,061
TOP OF ACTIVE CONSERVATION	4788.00	67,854	64,793

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4732.80	5,142	OCT 01, 2001
END OF YEAR	4741.38	11,436	SEP 30, 2002
ANNUAL LOW	4732.80	5,142	OCT 01, 2001
ANNUAL HIGH	4787.31	66,698	JUL 28, 2002
HISTORIC HIGH	4788.30	68,371	JUN 30, 1986

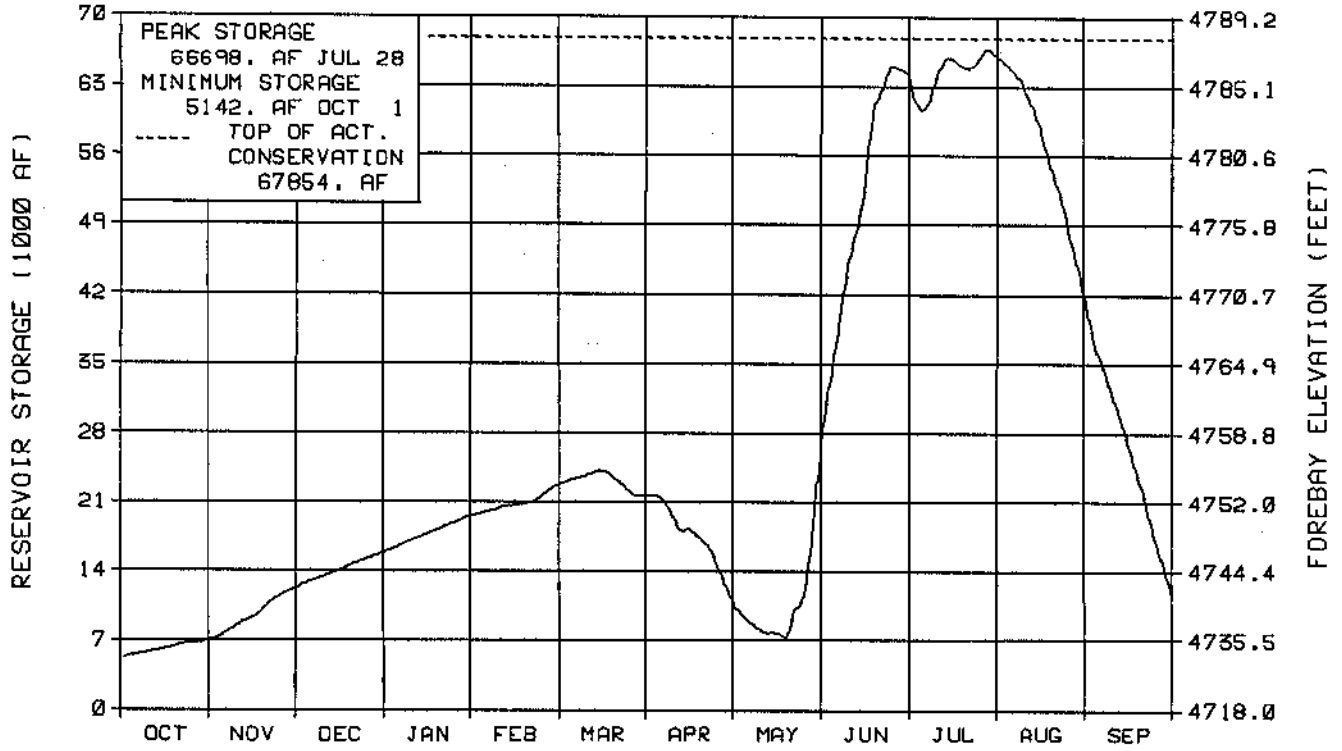
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	175,604	OCT 01-SEP 02	169,314	OCT 01-SEP 02
DAILY PEAK (CFS)	1,871	MAY 30, 2002	1,487	JUN 25, 2002
DAILY MINIMUM (CFS)	20	FEB 15, 2002	0	*

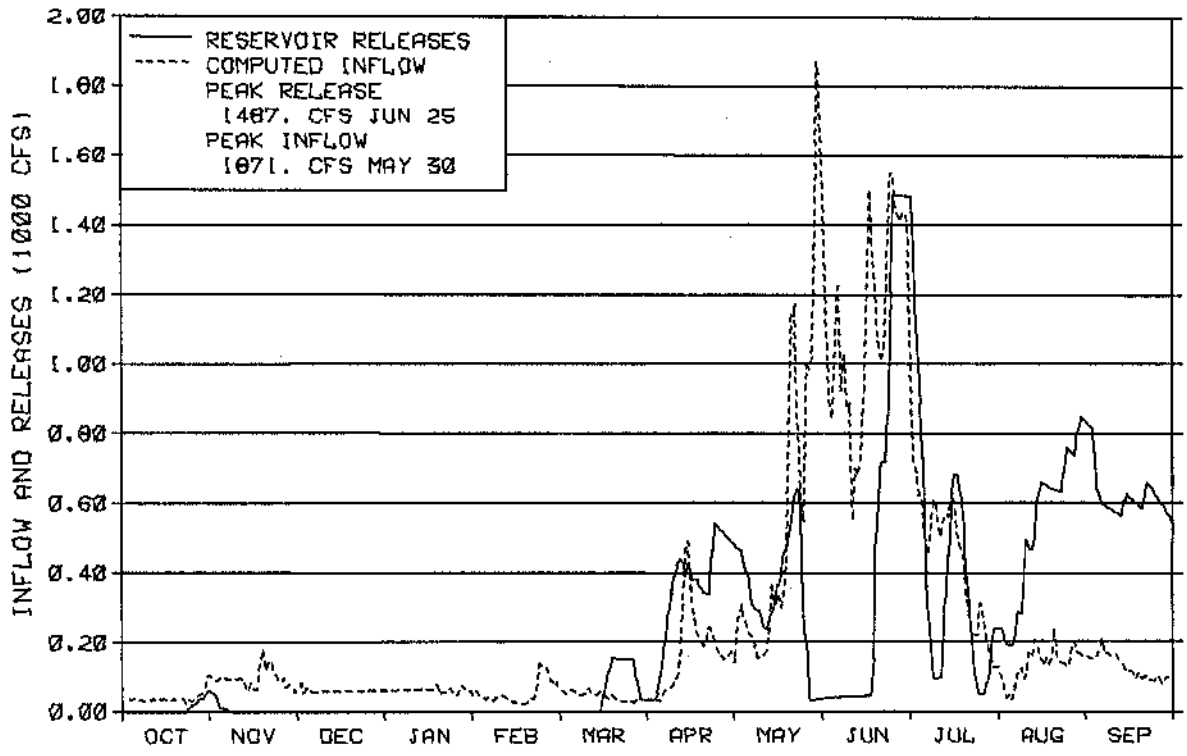
* During nonirrigation season

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	2.5	41	0.6	17	7.0	62
NOVEMBER	5.5	98	0.2	19	12.3	78
DECEMBER	3.7	97	0	---	16.0	81
JANUARY	3.7	134	0	---	19.7	87
FEBRUARY	2.9	120	0	---	22.6	91
MARCH	2.6	88	3.5	87	21.7	88
APRIL	10.0	111	20.4	156	11.3	53
MAY	35.1	109	20.2	99	26.2	83
JUNE	66.8	160	28.7	143	64.3	117
JULY	27.2	129	25.4	102	66.1	132
AUGUST	8.2	87	33.5	104	40.9	158
SEPTEMBER	7.3	114	36.8	162	11.4	112
ANNUAL	175.6	122	169.3	119		
APRIL-JULY	139.1	134				

* Average for the 1955-2002 period.

FIGURE MTG9
LAKE SHERBURNE





WATER YEAR 2002

Fresno Reservoir is located above all project lands on the Milk River near Havre, Montana. A sediment re-survey done during 1999 and finalized during 2000 determined the normal full pool capacity was 92,880 acre-feet, a loss of 10,517 acre-feet from the previous capacity. The new revised elevation-area-capacity data was used beginning in water year 2001. The top 32,802 acre-feet is used jointly for flood control and conservation and is not filled until the start of the spring runoff. Fresno stores the natural flow of the Milk River along with water diverted into the Milk River from the St. Mary River and Lake Sherburne. Stored water is used principally for irrigation, but Havre and Chinook, Montana, have contracted for a minimum flow in the river of 25 cfs during the winter to maintain a suitable water quality for municipal use. The city of Harlem and the Hill County Water District have also contracted for municipal use.

Fresno Reservoir began the water year with storage content of 20.674 acre-feet, 52 percent of normal and only 22 percent of full capacity. Releases From Fresno Reservoir at the beginning of the water year were about 32 cfs, the normal minimum release. Releases were increased during October 5 through October 15 when about 3,690 acre-feet were released for transfer to Nelson Reservoir. Storage at the end of October was 14,958 acre-feet, 38 percent of normal. The releases were than decreased to the minimum flow for the remainder of the fall and winter.

Accumulated precipitation in the irrigated valley by March 1 was only 39 percent of normal. Essentially no runoff accumulated into Fresno Reservoir during October through February and storage decreased through February. Storage on March 1 prior to the start of the normal runoff period was 5,781 acre-feet, the lowest March 1 storage since 1989 and the second lowest on record.

The March 1 water supply forecast indicated that 34,000 acre-feet of runoff could be expected, only 36 percent of normal. Based upon the March 1 forecast, Fresno Reservoir was not expected to fill and serious water shortages would result. The St. Mary Canal diversion was planned to begin on March 4 for an earlier than normal transfer of water to the Milk River Basin. Reclamation and the Milk River Basin irrigation districts met often to discuss the expected reduced water supply, including meetings on February 18, March 19, March 26, April 16, and May 9. The irrigation water supply was estimated to be 1.07 acre-feet diverted from the river per contract acre. This was slightly greater than the previous year. The water allocation was expected to be available as follows: 0.43 acre-feet in May, 0.59 acre-feet in June, 0.29 acre-feet in July, and 0.13 acre-feet in August. Releases from Fresno Reservoir were increased on April 18 to begin transferring water to Nelson Reservoir. Approximately 22,000 acre-feet was to be transferred to Nelson Reservoir to provide sufficient water in Nelson Reservoir to satisfy the irrigation allotment.

At the May 9 meeting, Reclamation and the districts agreed water users would be allotted 0.8 acre-feet per acre for the first irrigation. The allotment included the water available in May and 2/3rds of the amount believed to be available in June. Dodson North Canal, Dodson Pump and Harlem Irrigation District were to begin irrigation on May 20, and the remaining canals were to begin irrigation on June 1. Irrigation releases from Fresno Reservoir gradually increased to about 1,390 cfs by June 1. Accumulated precipitation in the irrigated area of the Milk River for the water year was only 56 percent of normal by June 1.

On May 20, the District Court appointed two water commissioners to distribute Milk River Project water. The water commissioners were authorized to measure and distribute stored water from the western boundary of Blaine County to Vandali a Diversion Dam.

On June 8, rain fell across the basin. Rainfall amounts near Milk River, Alberta, were reported to exceed 8 inches during June 8 through 11. The rain fell at a relatively steady rate and much of it soaked into the dry soil and subsoil. Even with much of the rain going into the soil, inflow to Fresno Reservoir peaked at 11,904 cfs on June 13, the 3rd highest daily inflow on record. Rain also fell downstream of Fresno, satisfying the crop irrigation demand. Fresno Reservoir water level reached normal full pool on June 15 and peaked 1.62 feet over full pool level by June 19. Flood control releases peaked at 2,337 cfs on June 19. Irrigation deliveries continued through the season with no further irrigation shortages. Irrigation releases were discontinued on September 20. Water was being releases from Fresno Reservoir at the end of the water year at a rate of about 460 cfs for transfer of storage to Nelson Reservoir.

Accumulated precipitation in the basin below Fresno Reservoir during the 2002 water year was 111 percent of normal. Precipitation was much above normal during June through August, satisfying much of the irrigation demand, allowing reservoir storage to continue to increase. Total inflow for the year was 324.500 acre-feet, 121 percent of normal. Diversions from the St. Mary River Basin to the Milk River Basin accounted for about 41 percent of the inflow to Fresno Reservoir. Storage on September 30 was 44,341 acre-feet percent of normal and 48 percent of full capacity.

Fresno Reservoir provided $2,237,100 in local flood control benefits during 2002. The total flood control benefits provided for 1950-2002 is $13,119,300.

Additional hydrologic and statistical information pertaining to the operation of Fresno Reservoir during 2002 can be found in Table MTT10-B and Figure MTGIO.

Nelson Reservoir, located near Malta, Montana, is an off-stream reservoir which receives its water supply from the Milk River by diversion through the Dodson South Canal. Nelson Reservoir is the only source of supply for the lower portion of the Malta Irrigation District. Nelson Reservoir can also serve the Glasgow Irrigation District when water is not available from Fresno Reservoir. Nelson Reservoir has a total capacity of 79,224 acre-feet and an active capacity of 60,574 acre-feet.

Nelson Reservoir began the water year with a storage content of 33,470 acre-feet, **59** percent of average. About 1,100 acre-feet of water was transferred from Fresno Reservoir to Nelson Reservoir during late October and early November. Storage gradually decreased through the winter until the end of March. Natural runoff in the Milk River was not available during March and diversions to Nelson Reservoir during April only averaged about 40 cfs. Fresno Reservoir water reached Nelson Reservoir on May 3. Storage in Nelson Reservoir temporarily peaked at 41,570 acre-feet on May 21. Irrigation releases began on May 20. Inflow to Nelson Reservoir during June and July totaled 20,500 acre-feet, a benefit resulting from the June 8-11 rain. Nesting piping plover did not affect the filling of Nelson Reservoir this year and water levels increased during late June through mid-July. Releases to the Milk River during May 20 through June 7 were made for use by Glasgow Irrigation District. Water was diverted into Nelson Reservoir during August and September. Storage on September 30 was 54,176 acre-feet, 96 percent of average.

Additional hydrologic and statistical information pertaining to the operation of Nelson Reservoir during 2002 can be found in Table MTT10-C and Figure MTG11.

Important Events - 2002

March 1: Milk River runoff forecast indicates only 36 percent of normal runoff.

March 18: St. Mary Canal begins to divert.

March 19: Reclamation and the irrigation districts met in Malta again to review the water supply and plan beginning date for irrigation diversion. Discuss allotment of 1.07 acre-feet per acre.

April 18: Releases from Fresno Reservoir were increased to begin transfer of water to Nelson Reservoir.

May 9: Reclamation and the irrigation districts met in Malta again to review the water supply and agree to maintain the allotment of 1.07 acre-feet per acre, but to allow only 0.8 acre-feet for the first irrigation. Irrigation diversions planned to start on May 20.

May 20: District Court appoints water commissioner to distribute water from western Blaine county line to Vandalia Dam upon request of Milk River Joint Board of Control with support from Reclamation.

June 8-11: Heavy rains fall in the basin upstream of Fresno Reservoir.

June 19: Fresno Reservoir storage peaks for the year 1.62 feet above normal full pool level. Water shortages avoided for remainder of irrigation season.

September 20: Irrigation diversions end for the season.

TABLE MTT10-B
HYDROLOGIC DATA FOR 2002
FRESNO RESERVOIR (MILK RIVER PROJECT)
NEW SEDIMENT SURVEY DATA EFFECTIVE 10/1/2000

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2530.00	448	448
TOP OF ACTIVE CONSERVATION	2567.00	60,346	59,898
TOP OF JOINT USE	2575.00	92,880	32,534

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2549.72	20,674	OCT 01, 2001
END OF YEAR	2561.28	44,341	SEP 30, 2002
ANNUAL LOW	2536.04	3,433	APR 04, 2002
ANNUAL HIGH	2576.62	101,112	JUN 19, 2002
HISTORIC HIGH	2579.35	154,023	APR 03, 1952

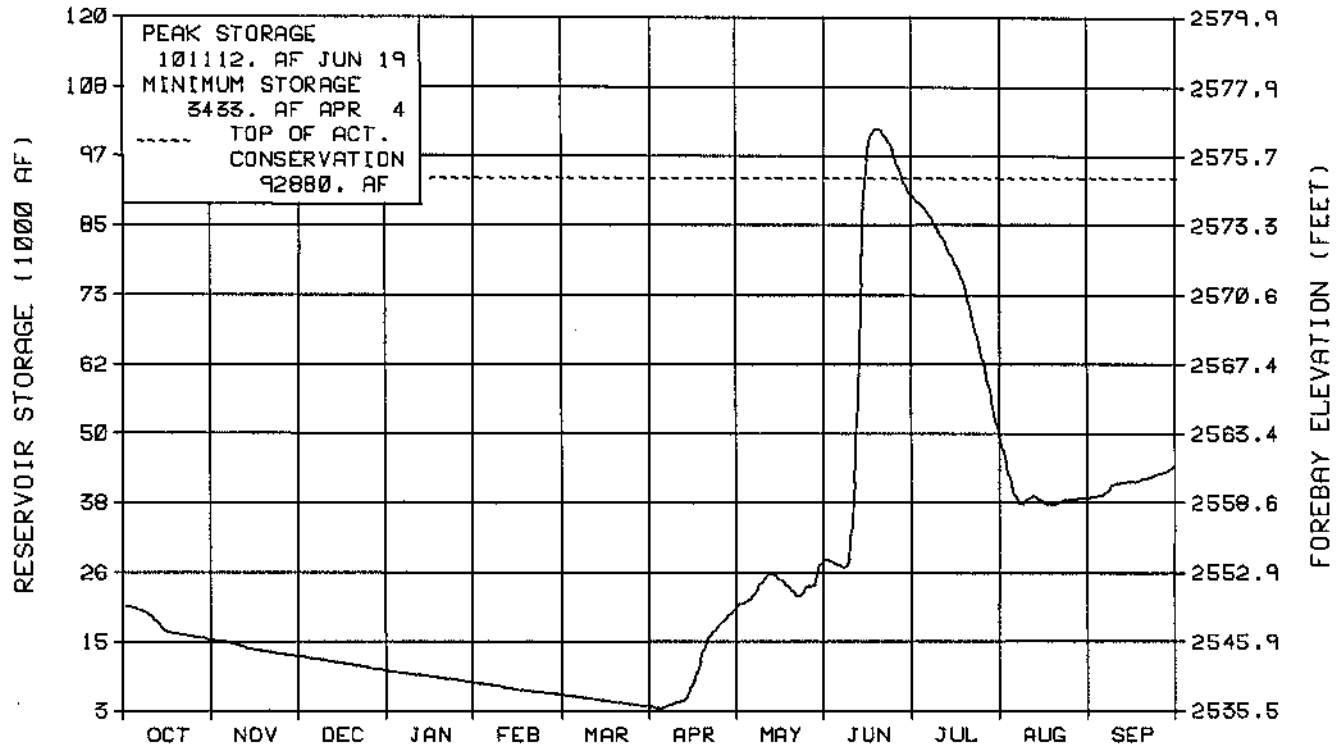
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	324,500	OCT 01-SEP 02	300,833	OCT 01-SEP 02
DAILY PEAK (CFS)	11,904	JUN 13, 2002	2,337	JUN 19, 2002
DAILY MINIMUM (CFS)	0		18	APR 04, 2002

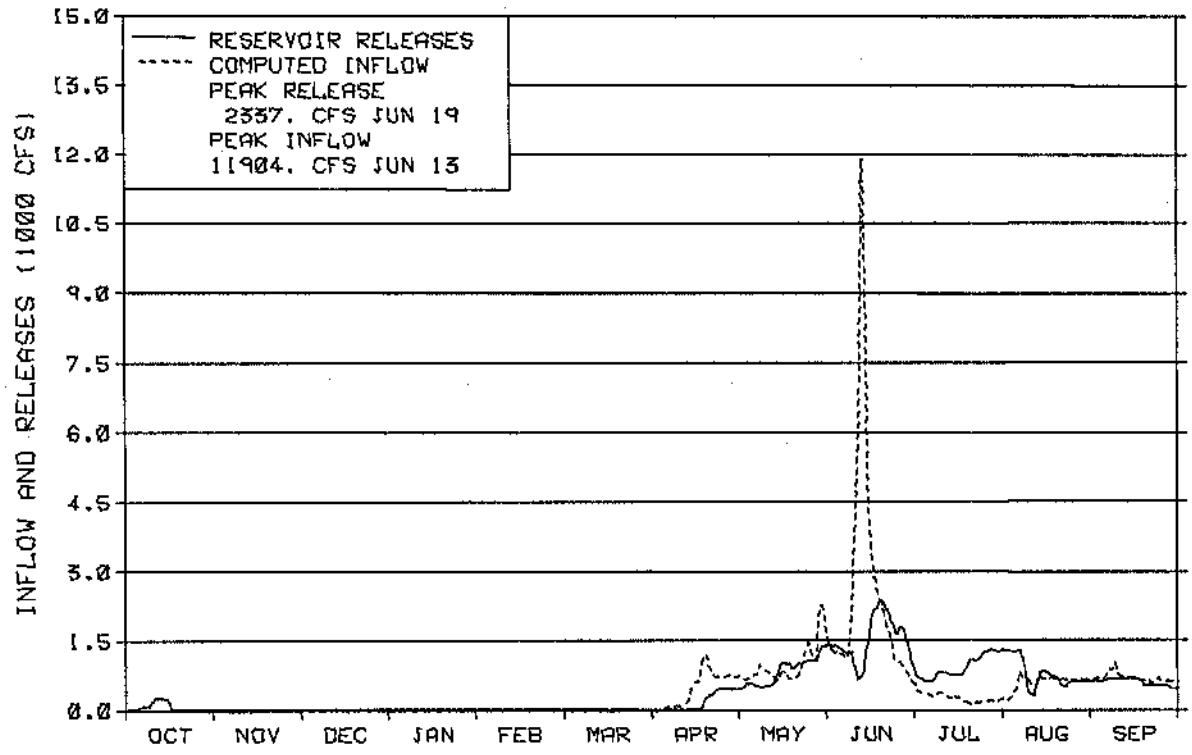
* During **nonirrigation season**

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	-.06	---	5.1	65	15.0	38
NOVEMBER	-1.0	---	1.8	58	12.2	31
DECEMBER	-0.6	---	1.8	67	9.8	26
JANUARY	-0.6	---	1.6	62	7.6	21
FEBRUARY	-0.5	---	1.3	53	5.8	16
MARCH	-0.8	---	1.3	19	3.7	7
APRIL	26.9	68	10.5	50	20.1	28
MAY	58.9	135	50.7	104	28.3	43
JUNE	151.7	331	89.8	181	90.2	146
JULY	15.4	44	56.3	101	49.2	111
AUGUST	35.9	109	46.2	103	38.9	104
SEPTEMBER	39.9	153	34.5	1551	44.3	111
ANNUAL	324.5	121	300.8	112		
APRIL-JULY	252.9	154				

* Average for the 1949-2002 period.

FIGURE MTG10
FRESNO RESERVOIR





WATER YEAR 2002

TABLE MTT10-C
HYDROLOGIC DATA FOR 2002
NELSON RESERVOIR (MILK RIVER PROJECT)
NEW SEDIMENT SURVEY DATA EFFECTIVE 10/1/2001

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2200.00	18,140	18,140
TOP OF ACTIVE CONSERVATION	2221.60	78,950	60,810

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2207.53	33,470	OCT 01, 2001
END OF YEAR	2215.26	54,176	SEP 30, 2002
ANNUAL LOW	2206.09	29,383	MAR 31, 2001
ANNUAL HIGH	2215.26	54,176	SEP 30, 2002
HISTORIC HIGH	2221.60	79,224	JUL 12, 1965

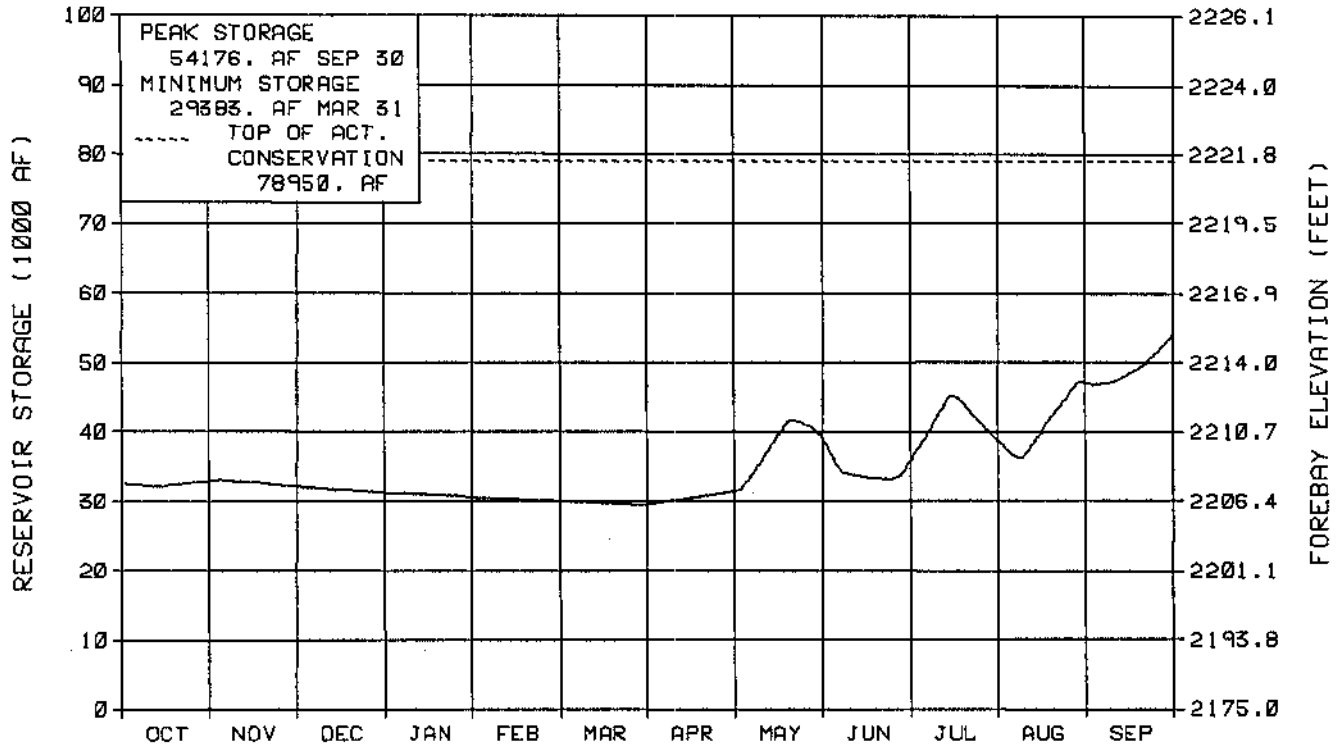
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	66,707	OCT 01-SEP 02	45,047	OCT 01-SEP 02
DAILY PEAK (CFS)	429	MAY 21, 2002	471	MAY 26, 2002
DAILY MINIMUM (CFS)	0	*	4	APR 24, 2002

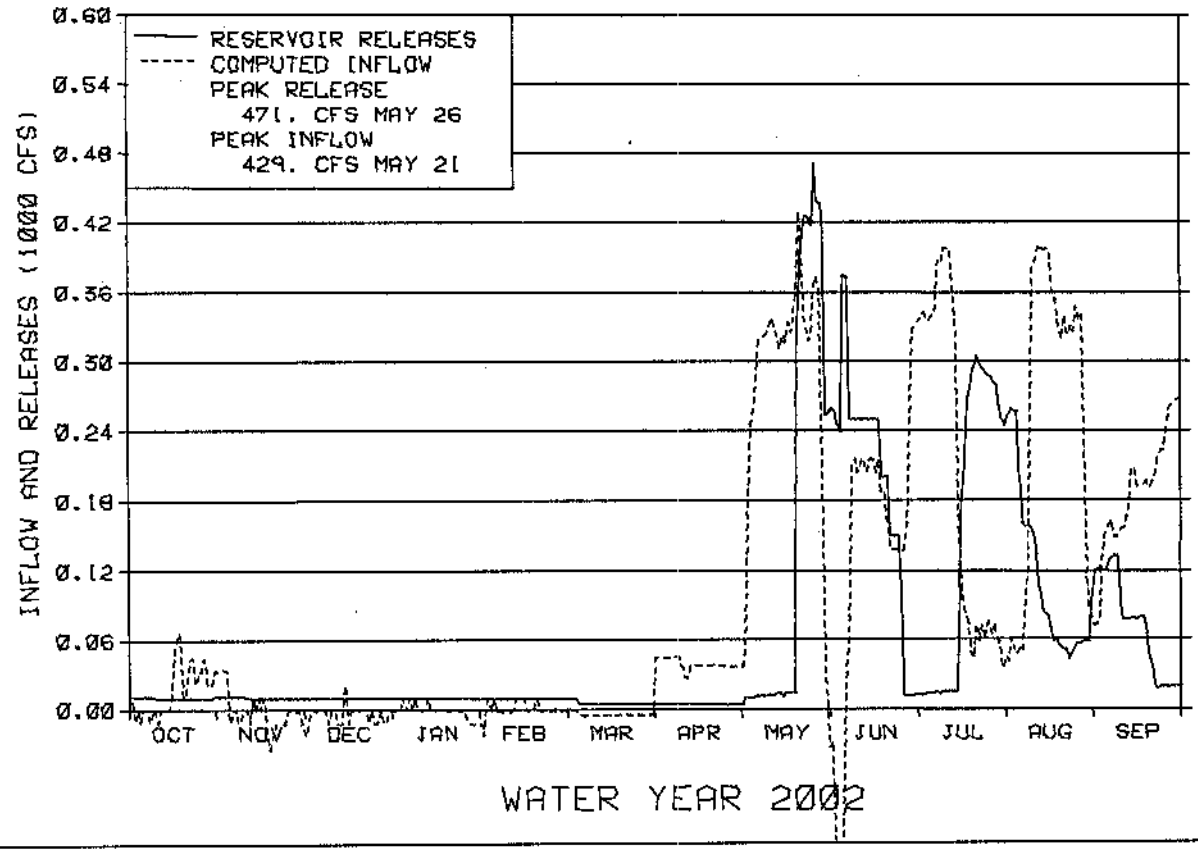
* During nonirrigation season

MONTH	INFLOW*		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF***	% OF AVG	KAF	% OF AVG
OCTOBER	1.1	26	0.6	38	32.9	56
NOVEMBER	-0.2	---	0.6	134	32.1	55
DECEMBER	-0.3	---	0.6	**	31.3	55
JANUARY	-0.2	---	0.6	**	30.5	55
FEBRUARY	0.0	---	0.5	**	30.0	56
MARCH	-0.3	---	0.3	**	29.4	54
APRIL	2.3	33	0.3	51	31.4	52
MAY	17.3	253	9.7	129	39.0	64
JUNE	8.2	107	11.6	155	35.5	59
JULY	12.3	252	9.2	97	38.6	70
AUGUST	15.2	223	6.9	93	46.9	87
SEPTEMBER	11.3	196	4.1	113	54.2	96
ANNUAL	66.7	169	45.0	116		
APRIL-JULY	40.0	152				

* Average for the 1947-2002 period.
** Much higher than average.
*** Nonirrigation season release is due to seepage.

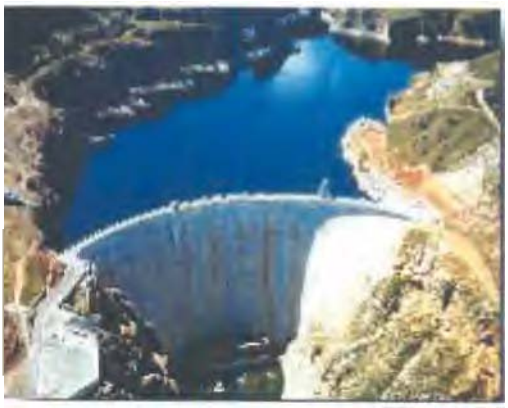
FIGURE MTG11
NELSON RESERVOIR





WATER YEAR 2002

Bighorn Lake and Yellowtail Powerplant



Bighorn Lake (P-S, MBP) is located on the Bighorn River about 45 miles southwest of Hardin, Montana. It has a total capacity of 1,328,360 acre-feet. The dam and reservoir were built for power generation, irrigation, flood control, fish and wildlife and recreation. The nameplate capacity of Yellowtail Powerplant is 250,000 kilowatts. Provisions have been made for gravity diversions from the reservoir to the proposed Hardin Unit which contains 42,600 acres of irrigable lands needing a full water supply and 950 acres to receive a supplemental supply. Stored water can also be used to irrigate additional lands along the Yellowstone River. Reclamation has negotiated an industrial water service contract with Montana Power Company for 6,000 acre-feet. All other industrial water service contracts with different entities expired as of May 1982, and none were renewed. Bull Lake, Boysen and Buffalo Bill Reservoirs are three major tributary reservoirs located in Wyoming upstream of Bighorn Lake. Because these reservoirs are operated and managed by the Wyoming Area Office (WYAO), all reservoir and river operations in the Bighorn River Basin are closely coordinated between the Montana Area Office (MTAO) and WYAO.

Moderate rains fell over the Bighorn Basin in early September, 2001. As a result, irrigation demands in the Bighorn and Shoshone River Basins upstream of Bighorn Lake began to decrease. This was also true of the irrigation demands to the Bighorn Canal, downstream of Yellowtail Dam. Streamflows into Bighorn Lake began to increase moderately during September. Inflows rose from 1,360 cfs on September 1 to 2,940 cfs on September 8, and remained above 1,800 cfs through September 21. With total release from Bighorn Lake essentially matching the inflow during September, Bighorn Lake remained fairly constant. Bighorn Lake entered water year 2002 with a storage content of 760,364 acre-feet at elevation 3602.82. This was about 75 percent of normal and was also 37.18 feet or 309,665 acre-feet below the top of the joint-use pool. This was the lowest storage level recorded at the end of the water year since construction of Yellowtail Dam and was also 18.43 feet or 122,977 acre-feet lower than at the beginning of water year 2001.

The lingering effects of the droughts of 2000 and 2001 continued to have a significant impact on the streamflows to Bighorn Lake during water year 2002. Fall and winter inflows to Bighorn Lake were well below normal. To continue conserving storage in Bighorn Lake, releases to the Bighorn River were maintained near 1,500 cfs. Inflow to Bighorn Lake was 54 percent of average during October, averaging 1,665 cfs. With releases to the Bighorn River maintained at 1,500 cfs, storage in Bighorn Lake increased moderately to 773,011 acre-feet at elevation 3605.02 on November 10. This was 297,018 acre-feet or 34.98 feet below the top of the joint-use pool and the lowest level recorded for this time of year since construction of the darn. This was also 142,295 acre-feet or 20.19 feet lower than the level recorded a year ago.

Precipitation over the Bighorn River Basin was well below normal during November through February. By late November, inflow to Bighorn Lake had dropped to 50 percent of normal averaging only 1,375 cfs and continued to drop, averaging 960 cfs during December through February. Total inflow during December through February was only 40 percent of normal and the lowest December-February inflow of record. With the river releases maintained at the minimum desired rate of 1,500 cfs, the record low inflow caused Bighorn Lake to slowly draft to 685,512 acre-feet at elevation 3588.82 by the end of February. This was 172,931 acre-feet or 29.10 feet lower than at this same time a year ago.

During 2001-2002, the Bighorn River Basin experienced a very mild and dry fall and winter. Mountain snowpack in the Bighorn Basin above Yellowtail Dam accumulated at well below normal rates during October through December. On January 1, the Natural Resources and Conservation Service (NRCS) measured mountain snowpack in the Bighorn Basin at about 74 percent of normal. The Wind and Shoshone River Basins, major tributaries of the Bighorn River, were measured at 72 and 70 percent of normal, respectively. These were increases of 6, 9, and 9 percent respectively, from those recorded on January 1, 2001.

On January 1, Bighorn Lake had a storage content of 741,667 acre-feet at elevation 3599.47. This was 155,356 acre-feet or 23.48 feet lower than a year ago. Based on the January water supply forecast, it was determined that releases from Bighorn Lake to the Bighorn River would remain at 1,500 cfs to conserve storage in Bighorn Lake. This flow rate was maintained through the entire water year with exception to a 10-12 day period in late June and early July. During this time, river flows were reduced to 1,250 cfs in an attempt for Bighorn Lake to reach a target elevation that would allow safe launching of boats at the Ok-A-Beh recreation area over the July 4th weekend. The Montana Fish, Wildlife and Parks considers a flow of 1,500 cfs to be the absolute minimum flow required to protect the main channel habitat for spawning and rearing conditions and a flow where there is a substantial loss in fish reproduction.

Weather conditions finally changed a bit during March as the Bighorn Basin began to receive above normal precipitation. The valley precipitation had improved to 128 percent of average while the mountain precipitation climbed to 111 percent of average. However, the above normal precipitation had little affect on the inflow to Bighorn Lake as much of the precipitation was absorbed into the very dry soils. By April, the drought once again returned.

During the winter of 2001-2002, mountain snowpack conditions in the Bighorn Basin did not improve. Snow continued to fall over the mountains of the Bighorn River Basin at less than normal rates and by May 1, the Natural Resource and Conservation Service once again measured the snowpack at 74 percent of normal. On this same date, snowpack in the Wind and Shoshone River Basins was 68 and 81 percent of normal, respectively. These were considerable improvements of about 11, 24, and 27 percent better respectively, than a year ago. However, it was still evident the drought of 2002 was continuing to maintain a firm grip on Montana and Wyoming. There was no indication the drought would be ending soon.

Early seasonal runoff forecasts that were prepared, indicated river flows needed to be maintained at 1,500 cfs, even if normal precipitation was received. But as the year went on, and the lack of normal spring precipitation was apparent, there were large concerns about what the impacts may be if the severe drought continued and become much worse than the drought of 2001. As plans were being prepared in May, the Bureau of Reclamation began entertaining discussions with the MFWP and NPS about the possibility of reducing river flows to less than 1,500 cfs in an effort to conserve storage in Bighorn Lake. At this time, no consensus was reached.

Inflow to Bighorn Lake is heavily dependent upon the releases out of Boysen and Buffalo Bill Reservoirs located upstream of Bighorn Lake on the Wind and Shoshone Rivers, respectively. Because snowpack above these reservoirs was also at critically low levels and storages in these reservoirs were also below normal, all natural inflows to these reservoirs would be stored with little opportunity for Bighorn Lake to receive any excess flows released out of these reservoirs. At this time, it appeared the only inflow that could be expected to flow into Bighorn Lake would be attributed to other tributary flows. But, these too, were forecast to be well below normal.

Normally mountain snowmelt runoff into Bighorn Lake begins about mid-April. However, the unseasonably warm dry weather melted much of the lower elevation snows and the early snowmelt was absorbed into the ground. These conditions accompanied by the lack of normal spring precipitation, created much larger irrigation demands earlier this year, and as a result, early streamflows to Bighorn Lake were severely depleted. Inflow to Bighorn Lake dropped to as low as 948 cfs by April 24 and averaged only about 1,330 cfs for the entire month of April. The April inflow was 46 percent of normal, totaling 79,224 acre-feet. By May the runoff into Bighorn Lake had only gotten worse. The May inflow was only 36 percent of normal, totaling 91,959 acre-feet. The April and May inflow were both the lowest monthly inflows of record since construction of Yellowtail Dam.

Noticeable increases in streamflows entering Bighorn Lake as a result of snowmelt runoff finally began during late May. Inflows increased from about 1,040 cfs on May 19 to the peak for the year of 6,116 cfs on June 2. But by the middle of June, the snowmelt runoff into Bighorn Lake was essentially over and by the end of June inflows had dropped to 1,330 cfs.

The lack of precipitation during June and July, kept upstream irrigation demands high, producing a significant impact on the inflow to Bighorn Lake. Inflows continued to drop until reaching a low for the summer of 666 cfs on July 16. The inflow to Bighorn Lake during June and July was 37 and 24 percent of average totaling 162,443 and 74,736 acre-feet, respectively. The June inflow was the 6th lowest inflow of record while the July inflow was the 2 ^{h6} lowest inflow of record. Actual April-July runoff into Bighorn Lake during 2002 was the lowest of record at 34 percent of normal and totaled 408,361 acre-feet.

During the peak of the snowmelt runoff, storage slowly but steadily increased from a content of 652,747 acre-feet at elevation of 3582.25 on May 21 to a peak summer content of 711,340 acre-feet at elevation 3593.82 on June 25. This was 358,689 acre-feet or 46.18 feet below the top of the joint use pool or 71 percent of average and 66 percent of full capacity. This level was the second lowest lake level ever recorded on this date at only 1.49 feet higher than the previous low level recorded in 1968.

Record low precipitation was recorded at many locations across Montana and Wyoming during August and September. Upstream irrigation demands remained high and inflow to Bighorn Lake during August and September remained well below normal at 53 percent of average. The August-September inflow totaled 182,875 acre-feet and was the 4 th lowest inflow of record. From the time storage peaked on June 25, storage in Bighorn Lake slowly declined to the record low content for the year of 623,181 acre-feet at elevation 3576.15 on September 9. This was 136,501 acre-feet or 26.55 feet lower than the previous record low established a year ago. This was also 446,848 acre-feet or 63.85 feet below the top of the joint-use pool.

Streamflows into Bighorn Lake began to increase moderately during late September. Inflows rose from 1,355 cfs on September 6 to 2,237 cfs on September 29 and averaged 1,857 cfs during September. Maintaining releases from Bighorn Lake to the Bighorn River at 1,500 cfs allowed storage to slowly increase. Storage in Bighorn Lake ended the water year with a storage content of 634,991 acre-feet at elevation 3578.61. This was about 62 percent of normal and was also 435,038 acre-feet or 61.39 feet below the top of the joint-use pool. This was the lowest storage level ever recorded at the end of the water year since construction of Yellowtail Dam and was also 24.21 feet or 125,373 acre-feet lower than the previous record low set at the end of water year 2001. Annual runoff into Bighorn Lake totaled 1,029,612 acre-feet and will be recorded as the lowest annual runoff of record since construction of Yellowtail Dam. This was 41 percent of average and 13 percent or 317,904 acre-feet less than the total runoff experienced during the drought year of 2001. The total amount of water released to the Bighorn River during 2002 was 1,076,323 acre-feet, 44 percent of normal, and was the lowest of record released to the Bighorn River since construction of Yellowtail Dam.

The record drought of 2002 severely impacted the operations of Bighorn Lake and the Bighorn River Basin. There was difficulty in managing the critically low water supply in the Bighorn Basin and balancing it among the various competing interest groups. However with strict conservation measures implemented early in the year, it was possible to provide limited opportunities early in the season for partial lake recreation on Bighorn Lake, protect the lake fishery interests, and provide habitat for the renowned trout fishery downstream of Yellowtail Afterbay Dam. Although Horseshoe Bend Marina and concessions were never opened in 2002, there were still limited opportunities to launch boats in Bighorn Lake at other locations. The same was true for the downstream river fishery. Even though it was impossible to maintain river flows at 2,500 cfs, releases to the Bighorn River were maintained above 1,500 cfs, a flow rate that is required to protect main channel habitat for the fishery with impacts to fish reproduction.

The Corps of Engineers estimated during 2002 Bighorn Lake did not prevent any local flood damages but did prevent $412,300 in flood damages downstream on the Missouri River below Fort Peck Reservoir. Since construction of Yellowtail Dam in 1965, Bighorn Lake has reduced flood damages by a total of $95,012,800.

Total generation produced at Yellowtail Powerplant during 2002 was 365,661,000 kilowatt-hours, the lowest generation generated since construction of the powerplant in 1967. The generation generated in 2002 was 39 percent of the long term average and was also 145,230,000 kilowatt-hours less than generated in 2001. All of the water released from the dam was released through the powerplant.

Important Events - Water Year 2002

October 9-11: All irrigation deliveries from the Afterbay to the Bighorn Canal (Canal) were gradually discontinued for the 2001 irrigation season.

October 20: Power generation indicated flows in the Bighorn River were lower than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs.

October 23: The Afterbay level was maintained no higher than elevation 3187.50 feet to allow for annual maintenance of the government camp sewage lagoon.

October 25: Flow measurement indicated flows in the Bighorn River were lower than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs.

November 7: Power generation indicated flows in the Bighorn River were lower than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs.

November 13-14: A two day outage was scheduled on units 1 & 2 to replace the penstock piezometer taps. During this outage turbine releases were limited to 3-unit capacity.

November 16: Flow measurement indicated flows in the Bighorn River were lower than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs.

December 17-March 15: An outage was scheduled on unit 2 of the powerplant for annual maintenance. During this outage turbine releases were limited to 3-unit capacity.

December 19: Flow measurement indicated flows in the Bighorn River were lower than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs.

January 4: Power generation indicated flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs.

February 22: Flow measurement indicated flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs.

March 19: Power generation indicated flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs.

March 26: Flow measurement indicated flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs.

April 10: Reclamation attended and participated in the Bighorn Interagency Coordination Meeting in Billings to discuss the operations of Bighorn Lake and Bighorn River. Tim Felchle, Chief of Reservoir and River operations, presented the water supply outlook and the proposed operations of Bighorn Lake and Bighorn River for the 2002 season.

April 22-23: Irrigation diversions from the Afterbay Reservoir to the Bighorn Canal were started at a rate of 100 cfs and gradually increased to 200 cfs. Power generation indicated river and canal flows were lower than anticipated. Turbine releases were adjusted to maintain total release at 1,700 cfs (1,500 cfs to the Bighorn River and 200 cfs to the Bighorn Canal). Because of the low mountain snowpack, strict conservation measures were implemented and river releases were gradually reduced in proportionate amounts equal to the increases in canal diversions. Canal diversions were adjusted throughout the irrigation season to meet the irrigation demands.

April 24: Flow measurement indicated flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain river release at 1,500 cfs. The BIA also reported a blow-out on the Bighorn Canal and requested all canal diversions be discontinued. Total release was reduced to 1,500 cfs (1,500 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

April 29-30: Repairs to the Bighorn Canal were completed. Turbine releases were gradually increased to maintain a total flow of 1,800 cfs (1,500 cfs to the Bighorn River and 300 cfs to the Bighorn Canal).

May 1: The BIA reported more problems with the Bighorn Canal and requested a decrease in diversions to the Canal. Turbine releases were decreased to maintain a total flow of 1,750 cfs (1,500 cfs to the Bighorn River and 250 cfs to the Bighorn Canal).

May 21: The level of the tailwater was maintained no higher than elevation 3183 to allow boats to safely enter the Yellowtail Dam spillway stilling basin for inspection of the spillway tunnel.

May 28: The BIA requested an increase in diversions to the Bighorn Canal. Turbine releases were increased to maintain a total flow of 1,900 cfs (1,500 cfs to the Bighorn River and 400 cfs to the Bighorn Canal).

May 29: Flow measurements indicated river and canal flows were higher than anticipated. Releases were adjusted to maintain a total release of 1,950 cfs (1,500 cfs to the Bighorn River and 450 cfs to the Bighorn Canal).

May 30: The BIA requested a decrease in diversions to the Bighorn Canal. Turbine releases were decreased to maintain a total release of 1,900 cfs (1,500 cfs to the Bighorn River and 400 cfs to the Bighorn Canal).

June 27-July 8: Inflow to Bighorn Lake was slowly receding causing the lake to remain fairly level. In a cooperative effort with MT Fish, Wildlife & Parks, the National Park Service, the Bureau of Indian Affairs and the Crow Tribe, and private irrigators, total release from Bighorn Lake was reduced to 1,685 cfs (1,250 cfs to the Bighorn River and 435 cfs to the Bighorn Canal) in attempt to

allow Bighorn Lake to slowly increase and possibly reach a target elevation of 3595 to safely launch boats at Ok-A-Beh marina over the July 4th weekend. At the conclusion of the July 4th weekend, the total release was increased to 2,050 cfs (1,500 cfs to the Bighorn River and 550 cfs to the Bighorn Canal) on July 8.

August 21: A flushing valve was scheduled to be replaced at the Bighorn River gaging station. During the replacement of the valve, the Afterbay level was maintained near elevation 3187.

September 9-10: Flow measurements indicated river and canal flows were lower than anticipated. The BIA also requested a decrease in diversions to the Bighorn Canal. As a result, releases were adjusted to maintain a total release of 1,750 cfs (1,465 cfs to the Bighorn River and 285 cfs to the Canal).

October 8-10: All irrigation deliveries from the Afterbay to the Bighorn Canal were discontinued for the 2002 irrigation season.

Additional hydrologic and statistical information pertaining to the operations of Bighorn Lake during 2002 can be found on Table MTT11 and MTG12.

For more detailed information on the operations of Boysen and Buffalo Bill Reservoirs during 2002, refer to the narratives for Boysen Reservoir and Powerplant and Shoshone Project under the responsibility of the Wyoming Area Office.

TABLE MTT11
HYDROLOGIC DATA FOR 2002
BIGHORN LAKE (YELLOWTAIL DAM)

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	3547.00	493,584	493,584
TOP OF ACTIVE CONSERVATION	3614.00	829,687	336,103
TOP OF JOINT USE	3640.00	1,070,029	240,342
TOP OF EXCLUSIVE FLOOD CONTROL	3657.00	1,328,360	258,331

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	3602.82	760,364	OCT 01, 2001
END OF YEAR	3578.61	634,991	SEP 30, 2002
ANNUAL LOW	3576.15	623,181	SEP 09, 2002
ANNUAL HIGH	3605.02	773,011	NOV 10, 2001
HISTORIC HIGH	3656.43	1,365,198	JUL 06, 1967

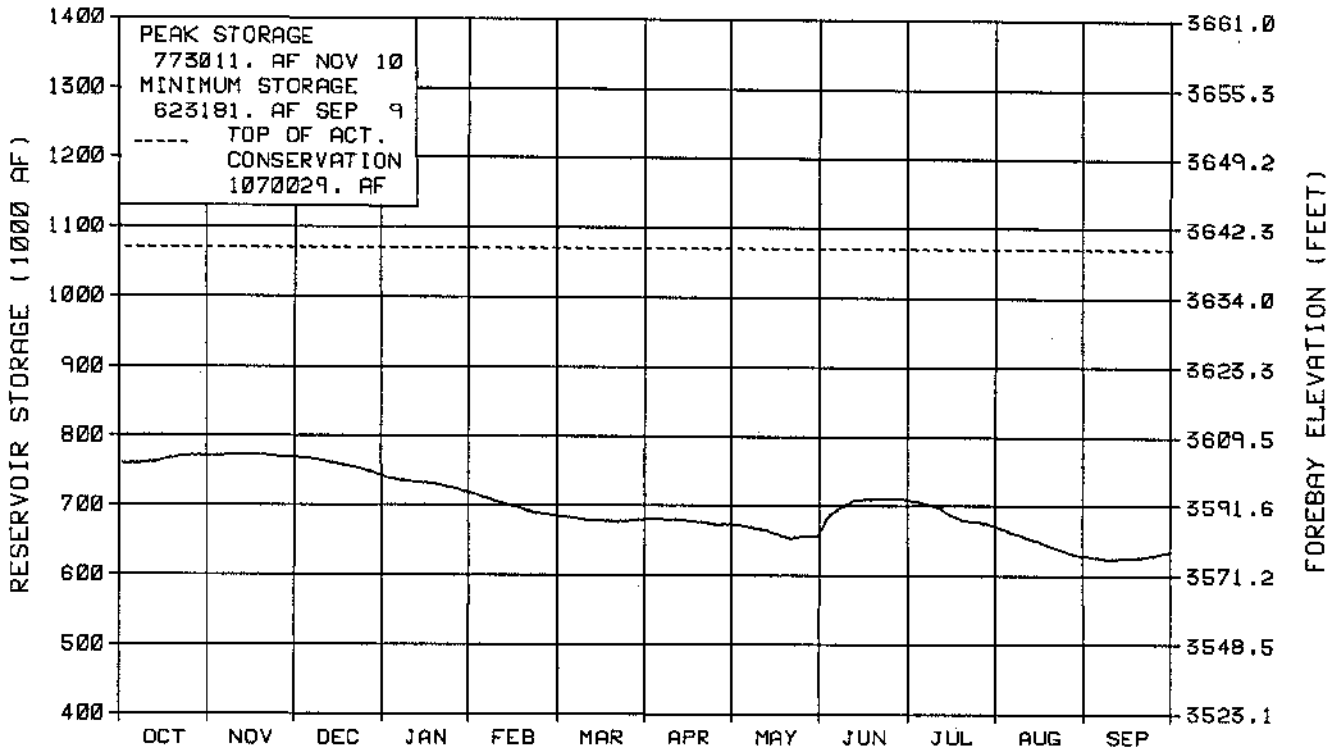
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW*	DATE
ANNUAL TOTAL (AF)	1,029,612	OCT 01-SEP 02	1,076,323	OCT 01-SEP 02
DAILY PEAK (CFS)	6,116	JUN 02, 2002	1,543	OCT 10, 2001
DAILY MINIMUM (CFS)	416	FEB 01, 2002	1,237	JUN 29, 2002
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

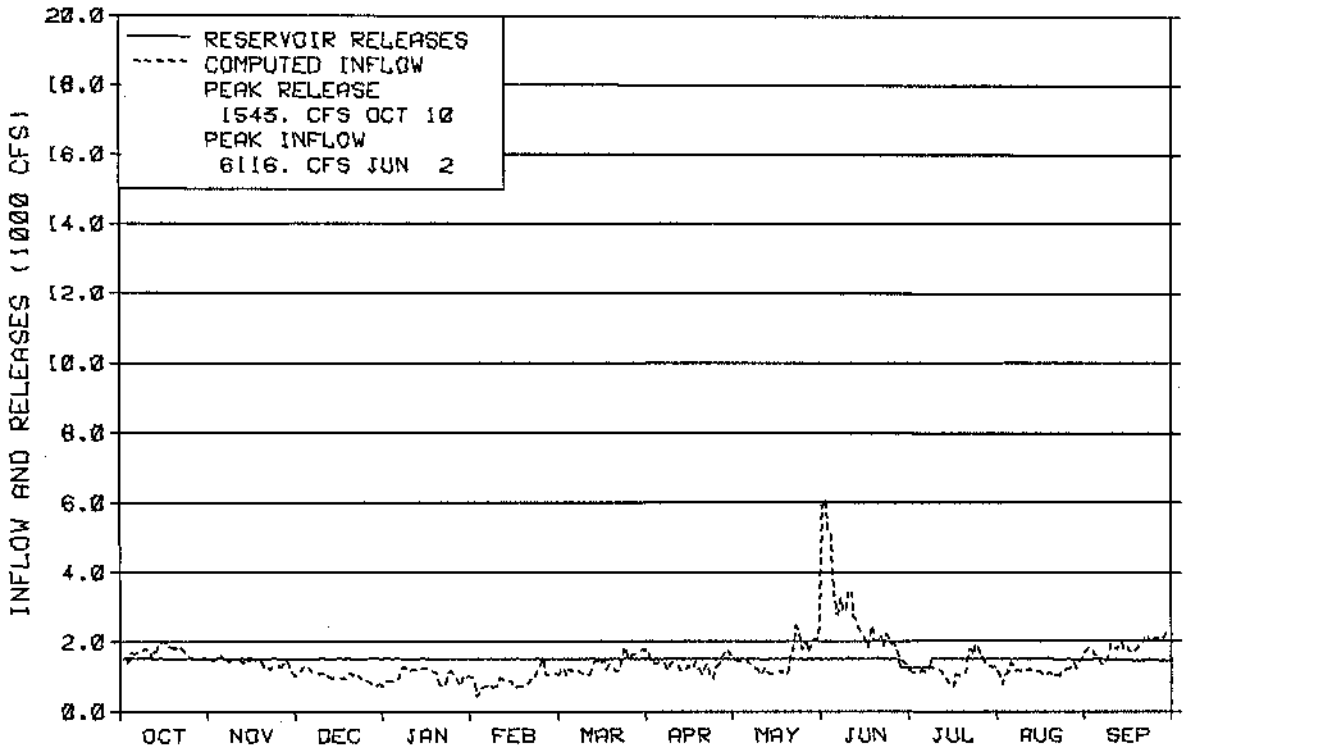
*Discharge to the Bighorn River

MONTH	INFLOW		OUTFLOW*				CONTENT	
	KAF	% OF AVG	CANAL KAF	% OF AVG	RIVER KAF	% OF AVG	KAF	% OF AVG
OCTOBER	102.4	54	2.8	65	92.6	51	772.1	77
NOVEMBER	81.9	50	0	---	89.3	47	769.1	79
DECEMBER	60.8	41	0	---	92.3	47	741.7	80
JANUARY	63.2	45	0	---	91.9	48	717.1	83
FEBRUARY	48.0	33	0	---	82.8	48	685.5	82
MARCH	82.2	46	0		92.1	47	680.3	82
APRIL	79.2	46	2.3	227	89.0	47	673.0	82
MAY	92.0	36	18.6	164	91.7	47	658.6	75
JUNE	162.4	37	27.9	127	87.5	32	709.5	69
JULY	74.7	24	30.1	108	88.3	30	670.0	65
AUGUST	72.4	43	27.3	102	91.5	51	628.4	62
SEPTEMBER	110.5	62	20.4	107	87.2	56	635.0	62
ANNUAL	1,029.6	41	129.5	115	1,076.3	44		
APRIL-JULY	408.3	34						

* Average for the 1967-2002 period.

FIGURE MTG12
BIGHORN LAKE





WATER YEAR 2002

CLIMATE SUMMARY

While conditions in the Bighorn Basin of Wyoming were somewhat improved compared to water year 2001, extreme drought persisted in much of the Basin during 2002. The cumulative effect of three years of drought was evident as below average reservoir inflow and storage prevailed throughout the Basin. Boysen Reservoir ended water year 2002 lower than at any time since the initial filling of the reservoir in 1952. Snowpack in the Wind River basin peaked at 80 percent of average in mid May but the April - July snowmelt runoff into Boysen Reservoir was only 25 percent of average. This was second only to last year when the April - July inflow to Boysen was the lowest since the closure of Boysen Dam, 18 percent of average. The Shoshone basin fared better than the Wind, receiving 81 percent of average runoff during the April - July period.

Precipitation during October was slightly above average in the Shoshone drainage but only eleven percent of average in the Wind River basin with near normal temperatures in both basins. Snow began to accumulate in the mountains around the middle of October. November temperatures averaged about four degrees above normal in the Shoshone and Wind River basins. November precipitation was less than average in both the Shoshone and Wind River drainages and on December 1, the snowpack stood at 66 and 59 percent of average, respectively. Temperatures during December were near normal and remained near average through February. Precipitation was well below average in the Wind River valley, but snowfall in the mountains on December 6 and 7 provided a substantial increase to the snowpack above Boysen. The storm also brought snow to the mountains above Buffalo Bill Reservoir, but the amounts were less than in the Wind River mountains. Snowfall was less than average during the remainder of the month, but the January 1 snowpack showed an increase for the month of 14 percent in the Wind River basin and 5 percent in the Shoshone basin.

Precipitation during January was less than average during the first twenty days of the month, but a storm on January 22 added enough to the snowpack to allow for a five percent increase for the month in the Shoshone basin. In the Wind River basin, losses to average that occurred during the first twenty days were recovered and the snowpack stood at 73 percent of average on February 1. February precipitation was well below average in both the Shoshone and Wind River basins and losses to average of five percent occurred in both basins. On March 1, snowpack in the Shoshone drainage was 70 percent of average while Wind River basin snowpack was 68 percent of average. Cold moist air moved into Wyoming during March with temperatures averaging six to eight degrees below normal for the month and above average precipitation throughout the Bighorn Basin. In the Wind River basin, snowpack increased eight percent, to 76 percent of average on April 1, while the Shoshone basin snowpack rose twelve percent to 82 percent of average. Normal temperatures returned to the Basin in April and the Buffalo Bill watershed received enough precipitation to maintain the snowpack. In the Boysen drainage, precipitation was less than average and the snowpack fell six percent further from average during the month. Flows into Buffalo Bill began to increase in the middle of May and runoff continued into late July. The highest inflows occurred in the last week of May and the first week of June, peaking at 8,790 cfs on June 1. In the Wind River basin, snowmelt runoff began around May 20 and ended in early July. As was the case last year,

only a portion of the runoff reached Boysen as much of the flow of the Big Wind River was diverted upstream of Riverton. During the period when snowmelt runoff was occurring, the inflow to Boysen exceeded outflow from June 1 through June 10 with the peak inflow of 3,892 cfs on June 3. Precipitation in June was 82 percent of average in the Shoshone basin but only 21 percent of average in the Wind River basin. Much needed precipitation fell above and below Boysen during the last half of July, providing some short term relief to the critically low water supply in Boysen Reservoir. The Wind River basin received less than average rainfall during the remainder of the water year. Precipitation in the Shoshone basin was also below average in August and September.

The 2002 mountain snow water content for the drainage basins in Wyoming are shown on Table WYT1. The 2002 water supply forecasts are shown on Table WYT2 and the 2002 precipitation in inches and the percent of average is shown on Table WYT3.

TABLE WYT1
2002 MOUNTAIN SNOW WATER CONTENT 1
AS A PERCENT OF THE 1971-2000 AVERAGE

DRAINAGE BASIN	JAN 1		FEB 1		MAR 1		APR 1		MAY 1	
	INCHES	%	INCHES	%	INCHES	%	INCHES	%	INCHES	%
BULL LAKE	3.35	60	4.68	64	5.45	60	7.80	69	5.88	56
BOYSEN	4.79	73	6.81	73	7.82	68	10.66	76	9.88	70
BUFFALO BILL	6.10	70	9.21	75	10.54	70	15.09	82	16.46	84

[1] A composite of the following Natural Resources Conservation Service SNOTEL sites was used to determine snow water content and percent of average for the basins:

Bull Lake ..... Cold Springs, Elkhart Park, Hobbs Park, and St. Lawrence Alt;

Boysen ..... Burroughs Creek, Cold Springs, Hobbs Park, Kirwin, Little Warm, St. Lawrence Alt, South Pass, Togwotee Pass, Townsend Creek, and Younts Peak;

Buffalo Bill .... Blackwater, Evening Star, Kirwin, Marquette, Sylvan Lake, Sylvan Road, and Younts Peak

TABLE WYT2
2002 WATER SUPPLY FORECASTS OF APRIL - JULY SNOWMELT RUNOFF

	JAN 1		FEB 1		MAR 1		APR 1		MAY 1		JUN 1		ACTUAL	APR-JULY	% OF APRIL FORECAST RECEIVED
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	
BULL LAKE	110	77	100	70	100	70	100	70	100	70	90	63	98.5	69	99
BOYSEN	375	60	375	60	325	52	325	52	300	48	210	34	159.1	25	49
BUFFALO BILL	550	80	550	80	490	71	500	73	550	80	530	77	552.5	81	111

Averages are based on the 1972-2001 period

TABLE WYT3
PRECIPITATION IN INCHES AND PERCENT OF AVERAGE

BASIN	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP	
	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
VALLEY PRECIPITATION [1]																								
BUFFALO BILL																								
MONTHLY PRECIP AND % OF AVERAGE	1.17	104	0.98	88	1.00	94	1.01	89	0.55	62	1.19	107	1.50	119	1.47	72	1.60	82	1.26	83	0.94	73	1.39	103
YEAR-TO-DATE PRECIP AND % OF AVERAGE	1.17	104	2.15	96	3.15	96	4.16	94	4.71	89	5.90	92	7.40	96	8.87	91	10.47	90	11.73	89	12.67	87	14.06	89
BOYSEN																								
MONTHLY PRECIP AND % OF AVERAGE	0.10	11	0.44	86	0.12	37	0.36	125	0.11	37	0.75	119	0.87	70	0.92	50	0.25	21	1.14	125	0.39	61	0.39	39
YEAR-TO-DATE PRECIP AND % OF AVERAGE	0.10	11	0.54	39	0.66	39	1.02	52	1.13	50	1.88	65	2.75	66	3.67	61	3.92	55	5.06	63	5.45	63	5.84	60
BULL LAKE																								
MONTHLY PRECIP AND % OF AVERAGE	0.07	10	0.38	88	0.13	55	0.43	210	0.09	39	0.64	129	0.82	73	0.80	44	0.17	14	1.23	119	0.46	62	0.28	26
YEAR-TO-DATE PRECIP AND % OF AVERAGE	0.07	10	0.45	40	0.58	43	1.01	65	1.10	61	1.74	76	2.56	75	3.36	64	3.53	55	4.76	64	5.22	64	5.50	59
MOUNTAIN PRECIPITATION [2]																								
BUFFALO BILL																								
MONTHLY PRECIP AND % OF AVERAGE	2.30	96	2.50	68	2.40	77	2.90	97	1.40	56	4.10	146	3.20	94	2.90	76	2.10	70	1.90	86	1.30	81	1.90	86
YEAR-TO-DATE PRECIP AND % OF AVERAGE	2.30	96	4.80	79	7.20	78	10.10	83	11.50	78	15.60	89	18.80	90	21.70	88	23.80	86	25.70	86	27.00	86	28.90	86
BOYSEN																								
MONTHLY PRECIP AND % OF AVERAGE	1.70	81	1.60	53	2.20	88	2.00	80	0.80	36	3.40	117	2.80	80	2.80	82	0.60	25	1.30	76	0.80	57	1.40	70
YEAR-TO-DATE PRECIP AND % OF AVERAGE	1.70	81	3.30	65	5.50	72	7.50	74	8.30	67	11.70	77	14.50	78	17.30	78	17.90	73	19.20	73	20.00	72	21.40	72
BULL LAKE																								
MONTHLY PRECIP AND % OF AVERAGE	1.10	55	1.10	50	1.70	100	1.30	81	0.60	38	2.60	108	2.40	75	2.50	74	0.60	26	1.20	80	0.80	57	1.10	58
YEAR-TO-DATE PRECIP AND % OF AVERAGE	1.10	55	2.20	52	3.90	66	5.20	69	5.80	64	8.40	73	10.80	73	13.30	73	13.90	68	15.10	69	15.90	68	17.00	67

[1] A composite of the following National Weather Service stations was used to determine monthly valley precipitation and percent of average for the drainage basins:
Bull Lake.....Burris, Diversion Dam, and Dubois;
Boysen.....Boysen Dam, Burris, Diversion Dam, Dubois, Lander, and Riverton;
Buffalo Bill.....Buffalo Bill Dam, Lake Yellowstone, and Tower Falls

[2] A composite of the following Natural Resources Conservation Service SNOTEL sites was used to determine monthly mountain precipitation and percent of average for the drainage basins:
Bull Lake.....Cold Springs, Elkhart Park, Hobbs Park, and St. Lawrence Alt;
Boysen.....Burroughs Creek, Cold Springs, Hobbs Park, Kirwin, Little Warm, St. Lawrence Alt, South Pass, Togwotee Pass, Townsend Creek, and Younts Peak;
Buffalo Bill.....Blackwater, Evening Star, Kirwin, Marquette, Sylvan Lake, Sylvan Road, and Younts Peak

Averages for Valley Precipitation are based on the 1972-2001 period
Averages for Mountain Precipitation are based on the 1971-2000 period

FLOOD BENEFITS

Flood Damage Prevented in the Wind/Bighorn and Shoshone River Systems'					
Reservoir	**Local**	**Main Stem**	**2002 Total**	**Previous Accumulation**	**1950 - 2002 Accumulation Total**
Bull Lake[2]	$ 0	$ 0	$ 0	$ 2,690,300	$ 2,690,300
Boysen	$ 0	$ 105,100	$ 105,100	$76,397,400	$76,502,500
Buffalo Bill[2]	$ 256,700	$ 0	$ 256,700	$ 9,440,700	$ 9,697,400

1/ This data is received from the Army Corps of Engineers Omaha District Office and is revised every October. The period of assessment is 1950 through 2002.
2/ No space is allocated to flood control, but some flood protection is provided by operation for other purposes.

Riverton Unit

The Riverton Project was reauthorized as the Riverton Unit Pick-Sloan Missouri Basin Program (P-S MBP) on September 25, 1970. Major facilities of this unit are Bull Lake Reservoir, Wind River Diversion Dam, Wyoming Canal, Pilot Butte Powerplant, Pilot Butte Reservoir, and Pilot Butte Canal. The major facilities provide water for irrigation of about 76,000 acres on the Midvale Irrigation District (Midvale). The water supply comes partly from the natural flow of the Wind River and partly from water stored in Bull Lake and Pilot Butte Reservoirs.

Bull Lake Reservoir is located on Bull Lake Creek, a tributary of the Wind River near Crowheart, Wyoming. Bull Lake has an active capacity of 151,737 acre-feet (AF), and is above all unit land. It is the principal storage facility for the unit and is operated by Midvale under contract with Reclamation. A small amount of incidental flood control benefit is provided by normal operation for other purposes. Bull Lake also provides a water resource for enhancing fish, wildlife, and recreation.

Water year 2001 was one of the driest on record in the Wind River basin and the 2001 irrigation season ended in early September on the Riverton Unit. In most years when there is an adequate water supply, irrigation deliveries continue into October. Releases from Bull Lake were reduced to approximately 25 cfs at the end of the irrigation season to conserve the remaining storage in Bull Lake and diversion into Wyoming Canal also ended. At the beginning of water year 2002, Bull Lake content was 26,878 AF at elevation 5754.78 feet. This was 31 percent of average and 18 percent of capacity. Only water years 1941 and 1989 started with less water stored in Bull Lake. As natural flow in the Wind River became available in mid October, diversions into Wyoming Canal were reinstated and continued through November 21 in order to refill Pilot Butte Reservoir.

During the 2001 irrigation season Midvale entered into an agreement that allowed the storage of Boysen water in Bull Lake and the exchange of Bull Lake storage for Boysen water diverted from the Wind River at Diversion Dam. This allowed Midvale to provide water to irrigators at the end Of the season without causing further depletions to Bull Lake. Once irrigation season ended, the Boysen water in Bull Lake was transferred back to Boysen at a rate of approximately 25 cfs to provide a fishery flow in Bull Lake Creek. While inflow during October, November, and December was below average, it did exceed the release and storage in Bull Lake increased to 29,123 AF at the end of December. On January 1, snowpack in the basin above Bull Lake was 60 percent of average. Water supply forecasts were prepared each month, beginning in January and continuing through June, for the April-July snowmelt runoff period. The January forecast indicated the April-July snowmelt runoff would be approximately 110,000 AF, which was 77 percent of average. Snow conditions remained near 60 percent of average through January and February but inflows averaged less than 25 cfs and the reservoir declined slightly. At the end of February, Bull Lake held 28,884 AF of water at elevation 5755.87 feet. The snowpack on March 1 was 60 percent of average and the March 1 forecast of April-July snowmelt runoff into Bull Lake was 100,000 AF. While snowfall was above average during March it was not enough to affect the forecast, which remained at 100,000 AF in April and May. Midvale began diverting water into Wyoming Canal on April 8 to complete the filling of Pilot Butte Reservoir and irrigation deliveries commenced on April 15. The 25 cfs release was maintained into May when higher releases were required to satisfy irrigation demands. Runoff began in mid May and reached a peak of 1,524 cfs on June 1. As the runoff continued,

Midvale's demands were met by the flow in the Wind River and releases from Bull Lake were reduced. The reservoir rose through the runoff period, reaching a maximum content of 100,509 AF at elevation 5787.32 feet on July 15. The maximum content was 51,950 AF and 17.68 feet below the top of the active conservation pool. As flows in the Wind River declined, districts below Boysen placed a call for delivery of direct flow water to serve their 1904 and earlier priority water rights on July 17, 2002. The State Engineer's Office immediately began strict regulation of all rights on the Wind and Bighorn River junior to 1904, which included Midvale's August 7, 1906 right. Rainfall in the basin shortly after the "call" was issued provided some temporary relief, but for the most part, little natural flow water was available to Midvale for the remainder of the season. Bull Lake storage was called upon to meet irrigator's needs and by the end of August, storage in the reservoir was reduced to 55,458 AF. Irrigation deliveries on the Riverton Unit continued until September 16, about two weeks later than in 2001 but still earlier than normal. The release from Bull Lake was reduce to approximately 30 cfs for the remainder of September.

Actual April-July inflows totaled 98,650 AF, 69 percent of average. Total inflow to Bull Lake for the water year was 126,679 AF, 66 percent of average. The flow of the Wind River above the mouth of Bull Lake Creek was estimated to be 62 percent of average, totaling 271,625 AF during the April-July period. The total diversion into the Wyoming Canal for the April-September period was 240,429 AF, 69 percent of average.

Additional hydrologic and statistical information pertaining to Bull Lake operations during 2002 can be found in Table WYT4 and Figure WYG1.

Pilot Butte Reservoir, an off-stream reservoir near Kinnear, Wyoming, receives its water supply from the Wind River through the Wyoming Canal. Pilot Butte Reservoir has a total capacity of 33,721 AF. Of this amount, 3,803 AF is allocated for inactive and dead storage and 29,918 AF for active conservation storage. Pilot Butte Dam and the Wyoming Canal which supplies the reservoir are operated by Midvale under contract with Reclamation.

As the 2001 irrigation season ended, Pilot Butte Reservoir was drawn down much lower than normal to facilitate repairs to the concrete at the outlet of the Dam. The water year began with a total storage content of approximately 3,792 AF in Pilot Butte Reservoir at elevation 5409.96 feet. Upon completion of the repairs, Midvale began diversions to refill Pilot Butte on October 16, 2001. Diversions into Pilot Butte continued until November 21 with the reservoir reaching a content of 29,504 AF at elevation 5455.18 feet. After diversions into the lake were terminated for the year, the reservoir level slowly fell through the winter as evaporation reduced the content. Storage on March 31 was 28,887 AF at elevation 5454.45 feet. Diversions into Pilot Butte began April 8 and the reservoir reached a peak storage content for the year of 31,677 AF at elevation 5457.70 feet on Jul) 5, 2002. Irrigation deliveries were initiated on April 15 and continued through September 15. Pilo Butte operations during the last weeks of the 2002 season were similar to what occurred in 2001 Inflows were reduced and storage in the lake was used to meet demands in order to lower the lak for scheduled repairs at the outlet. At the end of water year 2002, Pilot Butte held 6,142 AF of watt at elevation 5417.40 feet.

Total generation at the Pilot Butte Powerplant in water year 2002 was 3,976,000 kilowatt-hours (kWh). During water year 2002, 43,710 AF or 29 percent of the water that entered the reservoir was used to generate power at Pilot Butte Powerplant.

Additional hydrologic and statistical information pertaining to Pilot Butte Reservoir during 2002 can be found in Table WYT5 and Figure WYG2.

TABLE WYT4
HYDROLOGIC DATA FOR WATER YEAR 2002
BULL LAKE RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	5739.00	722	722
TOP OF ACTIVE CONSERVATION	5805.00	152,459	151,737

STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	5754.78	26,878	OCT 01, 2001
END OF YEAR	5762.12	40,907	SEP 30, 2002
ANNUAL LOW	5754.78	26,878	OCT 01, 2001
HISTORIC LOW*	5743.03	6,228	MAR 31, 1950
ANNUAL HIGH	5787.32	100,509	JUL 15, 2002
HISTORIC HIGH	5805.70	154,677	AUG 10, 1965

* Prior to 1952 daily records are not available. End of month data was used to determine the historic low.

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	126,679	OCT '01-SEP '02	111,290	OCT '01-SEP '02
DAILY PEAK (cfs)	1,524	JUNE 1, 2002	916	AUG 16, 2002
DAILY MINIMUM (cfs)	6	JAN 14, 2002	22	FEB 1, 2002
PEAK SPILLWAY FLOW (cfs)			0	
TOTAL SPILLWAY FLOW (AF)			0	

	INFLOW		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	2.8	52	1.6	22	28.1	33
NOVEMBER	2.1	70	1.4	47	28.7	34
DECEMBER	1.9	79	1.5	58	29.1	34
JANUARY	1.3	62	1.5	58	29.0	34
FEBRUARY	1.1	69	1.2	63	28.9	34
MARCH	1.2	67	1.4	67	28.6	34
APRIL	1.6	47	1.3	29	29.0	35
MAY	15.1	56	5.7	39	38.4	41
JUNE	52.7	83	4.0	15	87.0	66
JULY	29.2	59	20.8	42	95.4	72
AUGUST	9.8	44	49.8	110	55.5	51
SEPTEMBER	7.9	77	22.5	61	40.9	49
ANNUAL	126.7	66	111.3	57		

APRIL - JULY INFLOW (AF)	
ACTUAL	AVERAGE
98,650	143,500

* Average for the 1972-2001 period

FIGURE WYG1

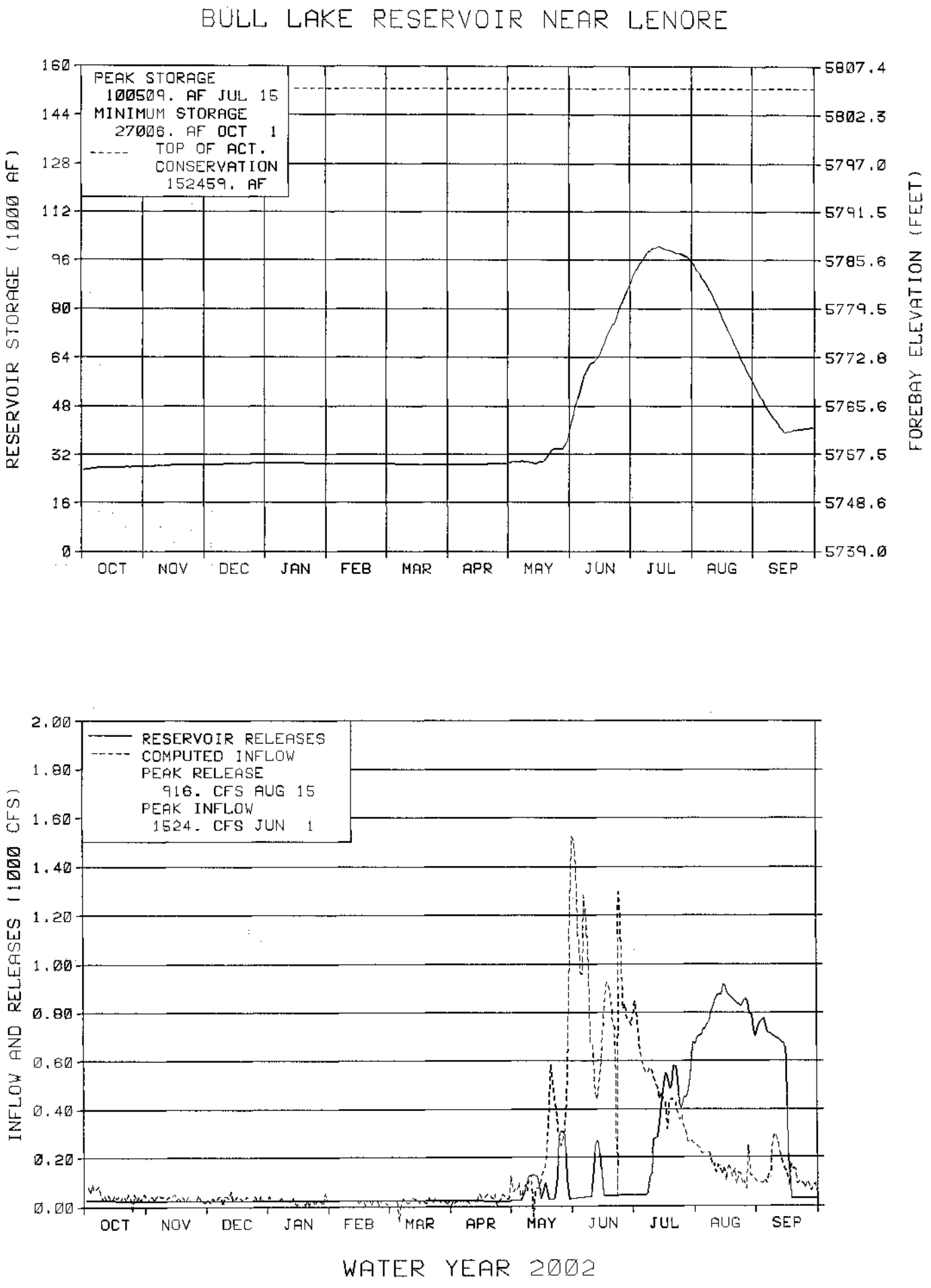

BULL LAKE RESERVOIR NEAR LENORE
PEAK STORAGE
100509. AF JUL 15
MINIMUM STORAGE
27006. AF OCT 1
TOP OF ACT. CONSERVATION
152459. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
160
144
128
112
96
80
64
48
32
16
0
5807.4
5802.3
5797.0
5791.5
5785.6
5779.5
5772.8
5765.6
5757.5
5748.6
5739.0
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
916. CFS AUG 15
PEAK INFLOW
1524. CFS JUN 1
INFLOW AND RELEASES (1000 CFS)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
WATER YEAR 2002

TABLE WYT5
HYDROLOGIC DATA FOR WATER YEAR 2002
PILOT BUTTE RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	5410.00	3,803	3,803
TOP OF ACTIVE CONSERVATION	5460.00	33,721	29,918

STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	5409.96	3,792	OCT 01, 2001
END OF YEAR	5417.40	6,142	SEP 30, 2002
ANNUAL LOW	5409.96	3,792	OCT 01, 2001
HISTORIC LOW	5409.96	3,792	SEP 19, 2001
ANNUAL HIGH	5457.70	31,677	JUL 05, 2002
HISTORIC HIGH	5460.00	36,910	7/7/73 & 6/24/89

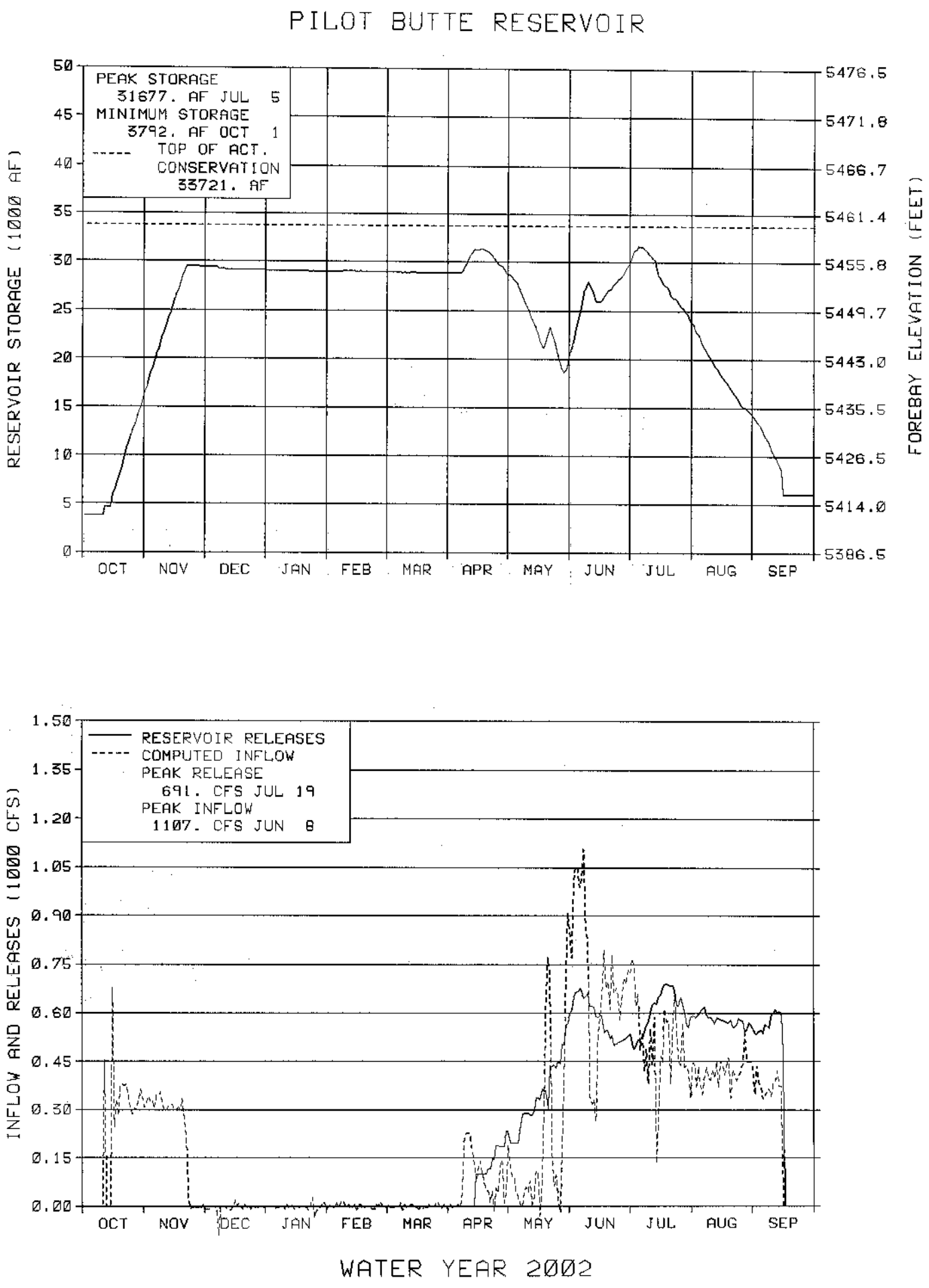
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	150,357	OCT '01-SEP '02	149,781	OCT '01-SEP '02
DAILY PEAK (cfs)	1,107	JUNE 08, 2002	691	JULY 19, 2002
DAILY MINIMUM (cfs)	0	WINTER MONTHS	0	WINTER MONTHS
PEAK SPILLWAY FLOW (cfs)			0	
TOTAL SPILLWAY FLOW (AF)			0	

	INFLOW*		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg**	KAF	% of Avg**	KAF	% of Avg**
OCTOBER.	12.7	157	0.0	0	16.4	75
NOVEMBER	13.0	684	0.0	0	29.4	130
DECEMBER	-0.3	0	0.0	0	29.1	129
JANUARY	-0.1	0	0.0	0	29.0	130
FEBRUARY	0.0	0	0.0	0	29.0	130
MARCH	-0.1	0	0.0	0	28.9	118
APRIL	4.5	50	4.5	88	28.9	101
MAY	11.9	52	21.1	83	19.6	75
JUNE	42.6	110	34.7	93	29.8	109
JULY	31.2	71	37.0	78	23.9	101
AUGUST	25.8	79	35.6	98	14.2	71
SEPTEMBER	8.8	36	16.8	62	6.1	36
ANNUAL	150.4	81	149.8	71		

* Negative values are the result of calculated inflow based on reservoir release and change in reservoir content.

** Average for the 1972-2001 period.

FIGURE WYG2


PILOT BUTTE RESERVOIR
PEAK STORAGE
31677. AF JUL 5
MINIMUM STORAGE
3792. AF OCT 1
TOP OF ACT. CONSERVATION
33721. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
50
45
40
35
30
25
20
15
10
5
0
5476.5
5471.8
5466.7
5461.4
5455.8
5449.7
5443.0
5435.5
5426.5
5414.0
5386.5
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
691. CFS JUL 19
PEAK INFLOW
1107. CFS JUN 8
INFLOW AND RELEASES (1000 CFS)
1.50
1.35
1.20
1.05
0.90
0.75
0.60
0.45
0.30
0.15
0.00
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
WATER YEAR 2002

Boysen Reservoir and Powerplant

Boysen Reservoir (P-S MBP) is located on the Wind River above Thermopolis, Wyoming. The dam and reservoir were built for flood control, power generation, irrigation, recreation, and fish and wildlife. Boysen Reservoir has a total capacity of 892,226 AF. Of this amount, 219,181 AF is allocated for inactive and dead storage, 522,413 AF for active conservation storage, and 150,632 AF for exclusive flood control storage. Of the amount allocated for active conservation, 144,229 AF is specifically allocated for joint-use flood control storage. All of the joint-use space is located between elevation 4717.00 feet and elevation 4725.00 feet, which is the top of the spillway gates when closed. The exclusive flood control space is located between elevation 4725.00 feet and elevation 4732.20 feet. When the reservoir rises above elevation 4724.50 feet, the spillway gates must be partially opened to maintain 1/2 foot of the gates above the water to prevent over-topping of the gates. When all flood control space is filled, releases cannot be controlled to less than 14,000 cfs.

Irrigation water is provided from the reservoir for several units, both upstream and downstream of Boysen Dam. Water is furnished downstream to about 7,500 acres in the Hanover-Bluff Unit (P-S **MBP)** and 3,400 acres on the Lucerne Canal in the Owl Creek Unit (P-S **MBP).** Supplemental water is also furnished to other irrigation districts and to a number of individual water users below the Dam. The Bighorn Canal Irrigation District and Hanover Irrigation District receive water under long term contracts with Reclamation. Depending on availability, water is also provided to Bluff Irrigation District, Kirby Ditch Company, Lower Hanover Canal Association, Bighorn Canal Irrigation District, and Hanover Irrigation District utilizing temporary water service contracts. In addition, water is provided on a demand basis, by exchange, to Midvale, Riverton Valley, and LeClair Irrigation Districts located on the Wind River upstream of the reservoir. Riverton Valley and LeClair Irrigation Districts hold long term contracts with Reclamation.

Water year 2002 began with 304,397 AF of water stored in Boysen Reservoir, which was 51 percent of the 30 year average. This was the second lowest content at the beginning of a water year since the initial filling of Boysen Reservoir. The corresponding reservoir elevation of 4694.04 feet was almost 31 feet below the top of the joint use pool. Irrigation releases for the 2001 season ended on October 1, 2001, as the demand for irrigation water fell below the planned fall and winter release of 400 cfs. The trend of the preceding summer months continued in October and November as inflow for each month was the lowest of record. November marked the sixth consecutive month of lowest of record monthly inflow. The reservoir level continued to decline through October and most of November, reaching a low of 294,388 AF on November 22. By the end of the month the reservoir had increased to 296,599 AF but this was still the lowest end of month content on record for November. Precipitation during October and November was well below average and the snowpack in the Boysen watershed was 59 percent of average on December 1. Snowfall during the first week of December increased the snowpack to 88 percent of average by December 7 but little accumulation occurred during the remainder of the month and on January 1, 2002, the basin snowpack was 73 percent of average.

Forecasts of April-July snowmelt runoff were prepared at the beginning of each month beginning in January and continuing through June. The January 1 forecast indicated approximately 375,000 AF of water, 60 percent of average, would enter Boysen Reservoir during the April-July runoff period. Precipitation continued to be in short supply for most of January, however, snowfall during the last week of the month was enough to bring conditions back to where they were on January 1. The reservoir held 306,236 AF of water at elevation 4694.22 feet on January 31, the lowest end of January content of record. With snow conditions identical to what they were the previous month, compared to average, the February 1 forecast of April - July runoff remained at 375,000 AF. February precipitation was about 35 percent of average in the mountains as well as in the valley. Inflow for the month of February was 64 percent of average and the snowpack fell five percent further from average to 68 percent on March 1. Conditions on March 1 indicated the snowmelt runoff forecast should be lowered to 325,000 AF, which was 52 percent of average. As March progressed, snow conditions in the basin improved somewhat but reservoir inflow was still well below average. At the end of March the reservoir held 323,770 AF at elevation 4695.91 feet, the second lowest end of March content of record. Snowpack in the basin was 76 percent of average and the April 1 forecast of April - July snowmelt runoff remained at 325,000 AF. The release from the Dam continued at 400 cfs and water users were notified that when increased releases were required to meet irrigation demands, Boysen storage water use accounting would begin. Boysen Reservoir storage water use accounting was implemented on April 22, 2002, and all changes in the release were coordinated by and requested through the Wyoming State Engineer's Office in Riverton. Runoff had not started and the irrigation demands were greater than the natural flow in the river, requiring the release of storage water to supplement the natural flow. The reservoir reached its maximum content for the year of 328,308 AF at elevation 4696.34 feet on April 21, the last day of the 400 cfs release.

Inflow to the reservoir during April was equal to the release from the Dam and at the end of April the reservoir content was the same as it was at the end of March, 323,770 AF of water. The snowpack lost six percent to average during April and the May 1 forecast was lowered to 300,000 AF. As was the case in the previous two years, much of the runoff was intercepted to satisfy the demands of diverters upstream of the reservoir and very little runoff reached the lake. Total reservoir inflow for the month of May was only 17 percent of average, the lowest of record for the month. Inflow to Boysen exceeded the outflow for the first ten days of June, with the peak daily inflow of 3,892 cfs occurring on June 3. Releases through the season were only what was required to meet irrigation demand and with the exception of a short period in July, the reservoir level declined each day after June 10. The maximum release of the irrigation season of 1,143 cfs occurred on July 2.

Because of the severity of the drought and the historic low level of storage in Boysen, three irrigation districts below Boysen placed a call for delivery of direct flow water to serve their 1904 and earlier priority water rights on July 17, 2002. This was the first time since the closure of the Dam in 1951 that administrative regulation of the mainstem of the Wind/Bighorn River by the Wyoming State Engineer's Office had been requested. The State determined the call was valid and began regulating all water rights on the river that were junior to the 1904 rights. Timely rains fell in the basin shortly after the call was issued, allowing a temporary suspension of the regulation of some junior rights as the storm water moved through the system. Following the rainfall event, the call was re-instituted and remained in effect through the remainder of the season.

Actual inflow for the April-July period totaled 159,184 AF, 25 percent of average and the second lowest April-July total for the 1952-2002 period of operation of Boysen Dam. Total inflow to Boysen during water year 2002 was 383,749 AF, 37 percent of average. Water year 2002 inflow to Boysen was the second lowest of record with water year 2001 being the only year that was lower. The total inflow to Boysen during water year 2001 and 2002 of 745,344 AF is approximately 70 percent of what can normally be expected to flow into the reservoir in one year. The reservoir ended the water year at 4687.23 feet with a content of 238,985 AF. This was only 19,804 AF above the top of the inactive conservation pool and the lowest end of September content since the Dam was closed in 1952.

During water year 2002, Boysen Powerplant generated 26,201,000 **kWh** of electricity, about 33 percent of average and 20,861,000 **kWh** less than was generated in 2001. **Of** the 448,775 AF of water released from Boysen in water year 2002, 448,367 AF was discharged through the powerplant and 408 AF bypassed the powerplant.

During the 2002 irrigation season contractors below Boysen used the following amounts of storage water from Boysen Reservoir: Bighorn Canal Irrigation District used 15,489 AF, of which 13,300 AF was from long term contract and 2,189 AF was from temporary contract; Bluff Irrigation District used 2,058 AF, all from temporary contract; Hanover Irrigation District used 3,758 AF, all from long term contract; Highland Hanover Irrigation District used 22,520 AF, all from long term contract; Kirby Ditch Company used 1,319 AF, all from temporary contract; Owl Creek Irrigation District used **17,189** AF, all from long term contract; and Upper Bluff Irrigation District used 6,023 AF, all from long term contract. Contractors above Boysen used the following amounts of storage water by exchange: LeClair Irrigation District used 10,173 AF, all from long term contract; Midvale Irrigation District used 16,000 AF, all from temporary contract; and Riverton Valley Irrigation District used **1,859** AF, all from long term contract.

Important Events - 2002

October 1, 2001: Irrigation demand fell below the planned fall and winter release of 400 cfs, ending storage use accounting. The fall and winter release for water year 2002 was set at 400 cfs.

November **1,** 2001: Boysen Reservoir water information meeting was held in Worland to inform water users of expected operations and availability of temporary contracts for the 2002 irrigation season.

March **11,** 2002: Boysen Water User's meeting was held **in** Worland to present the water supply outlook and proposed operation of Boysen Reservoir in 2002.

April 22, 2002: The release from the Dam was increased to meet irrigation demand. Boysen Reservoir storage water use accounting was initiated and contractors were charged for storage water in accordance with their contracts.

July 17, 2002: The State Engineer's Office in Riverton received a written "call" from three irrigation districts below Boysen for delivery of direct flow water to serve their 1904 and earlier priority water rights.

September 25, 2002: Boysen Reservoir water information meeting was held in Worland to discuss water year 2002 operations, expected 2003 operation, and the winter release.

September 27, 2002: Irrigation demand fell below the planned fall and winter release of 300 cfs, ending storage use accounting. The fall and winter release for water year 2003 was set at 300 cfs.

Additional hydrologic and statistical information pertaining to the operation of Boysen Reservoir can be found in Table WYT6 and Figure WYG3.

TABLE WYT6
HYDROLOGIC DATA FOR WATER YEAR 2002
BOYSEN RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4685.00	219,181	219,181
TOP OF ACTIVE CONSERVATION	4717.00	597,365	378,184
TOP OF JOINT USE	4725.00	741,594	144,229
TOP OF EXCLUSIVE FLOOD CONTROL	4732.20	892,226	150,632

STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4694.04	304,397	OCT 01, 2001
END OF YEAR	4687.23	238,985	SEP 30, 2002
ANNUAL LOW	4686.87	235,737	SEP 24, 2002
HISTORIC LOW ELEVATION *	4684.18		MAR 18, 1956
HISTORIC LOW CONTENT *		235,737	SEP 24, 2002
ANNUAL HIGH	4696.34	328,308	APR 21, 2002
HISTORIC HIGH	4730.83	922,406	JUL 06, 1967

* Because storage space in a reservoir is lost as sediment is trapped behind the dam, reservoirs are resurveyed periodically to determine actual capacity. Based on the 1994 resurvey of Boysen Reservoir, the historic low content of 235,737 AF occurred at an elevation that was 2.69 feet higher than the historic low elevation.

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	383,749	OCT 001-SEP 002	448,775*	OCT 001-SEP 002
DAILY PEAK (cfs)	3,892	JUN 03, 2002	1,143	JUL 02, 2002
DAILY MINIMUM (cfs)	36	MAY 14, 2002	384	MAR 13, 2002
PEAK SPILLWAY FLOW (cfs)**				
TOTAL SPILLWAY FLOW (AF)**				

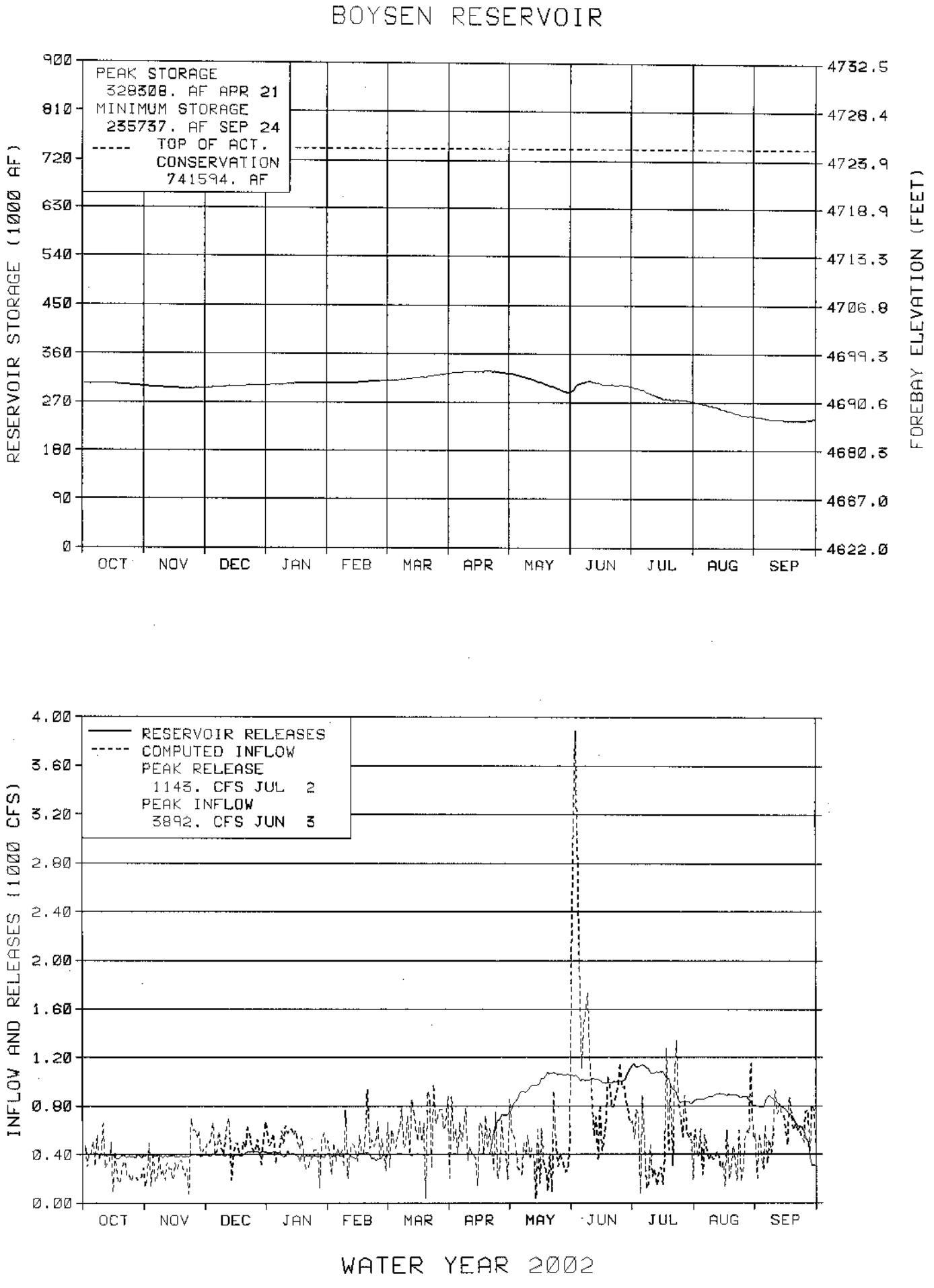
* Of the 448,775 AF of water released from Boysen Reservoir, 408 AF bypassed the powerplant.
**Spillway flow refers to water released through the spillway to control the reservoir level.

	INFLOW		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	19.3	29	24.2	32	299.5	49
NOVEMBER	20.3	39	23.2	35	296.6	50
DECEMBER	30.2	75	24.8	37	302.0	53
JANUARY	28.6	76	24.4	38	306.2	56
FEBRUARY	25.5	64	21.6	37	310.1	59
MARCH	38.3	69	24.7	35	323.8	63
APRIL	28.7	53	28.7	36	323.8	67
MAY	24.5	18	60.1	60	288.1	55
JUNE	72.6	26	60.6	42	300.1	47
JULY	33.4	21	61.9	40	271.2	42
AUGUST	26.5	38	53.6	54	244.2	40
SEPTEMBER	35.9	58	41.1	51	239.0	40
ANNUAL	383.7	37	448.8	425		

APRIL - JULY INFLOW (AF)	
ACTUAL	AVERAGE
159,246	625,900

* Average for the 1972-2001 period

FIGURE WYG3


BOYSEN RESERVOIR
PEAK STORAGE
328308. AF APR 21
MINIMUM STORAGE
235737. AF SEP 24
----- TOP OF ACT. CONSERVATION
741594. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
900
810
720
630
540
450
360
270
180
90
0
4732.5
4728.4
4723.9
4718.9
4713.3
4706.8
4699.3
4690.6
4680.8
4667.0
4622.0
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
1143. CFS JUL 2
PEAK INFLOW
3892. CFS JUN 3
INFLOW AND RELEASES (1000 CFS)
4.00
3.60
3.20
2.80
2.40
2.00
1.60
1.20
0.80
0.40
0.00
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
WATER YEAR 2002

Anchor Reservoir

Anchor Reservoir (P-S MBP) is located on the South Fork of Owl Creek, a tributary of the Bighorn River near Thermopolis, Wyoming. It has a total storage capacity of 17,228 AF, of which 17,160 AF is active storage. It was constructed to furnish a supplemental irrigation supply for the Owl Creek Unit (P-S MBP). The dam was completed in November 1960. However, several major sinkholes developed in the lower portion of the reservoir after it began to fill, and corrective work to plug the sinkholes has not been successful. There have also been substantial water losses through a rock waste area just upstream from the dam. Two dikes, in service since 1979, partition off the portions of the reservoir with high seepage losses. The top of the dikes are at elevation 6415.00 feet, however, when the reservoir rises above elevation 6412.80 feet, water flows through a notch in one of the dikes into the sinkhole area. The reservoir is operated not to exceed elevation 6412.80 feet. Operation and maintenance of Anchor Dam is performed by contract with Owl Creek Irrigation District. To prevent damage to the dikes and minimize the chance of creating new sinkholes, a reservoir restriction is in place at Anchor Reservoir. Reclamation requires notification from the irrigation district any time the reservoir level is expected to exceed elevation 6400.00 feet. Operation above 6400.00 feet will be directed by Wyoming Area Office (WYAO) staff to avoid overtopping of the dikes.

Storage in Anchor Reservoir at the beginning of water year 2002 was 266 AF at elevation 6355.40 feet. The reservoir level stabilized in mid November and remained constant until late March when the lake began to slowly rise. As inflows began to increase, the reservoir began to fill and on April 30, 2002, the reservoir contained 396 AF of water. Snowpack in the basin above Anchor was below average through the winter months and irrigation releases began on May 20. The reservoir reached a maximum content of 857 AF at water surface elevation 6369.10 feet on May 21. As runoff ended and demands increased, the reservoir level fell to 341 AF by the end of June. The reservoir reached a low of 254 AF at elevation 6355.00 feet on September 6 and remained at that level through the end of September.

Hydrologic and statistical data pertaining to Anchor Reservoir operations during 2002 can be found in Table WYT7 and Figure WYG4. The negative inflows displayed in Figure WYG4 are the result of calculated inflow based on reservoir release and change in reservoir content. During some periods, evaporation and seepage from the reservoir could exceed inflow.

TABLE WYT7
HYDROLOGIC DATA FOR WATER YEAR 2002
ANCHOR RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	6343.75	68	68
TOP OF ACTIVE CONSERVATION*	6441.00	17,228	17,160

* District operation has been restricted to elevation 6400.00 feet or less to prevent damage to the dikes and to minimize the chance of creating new sinkholes. Operations above elevation 6400.00 feet are directed by Reclamation.

STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	6355.40	266	OCT 01,2001
END OF YEAR	6355.00	254	SEP 30, 2002
ANNUAL LOW	6354.00	233	NOV 11, 2001
HISTORIC LOW			
ANNUAL HIGH	6369.10	857	MAY 21, 2002
HISTORIC HIGH	6418.52	9,252	JUL 03, 1967

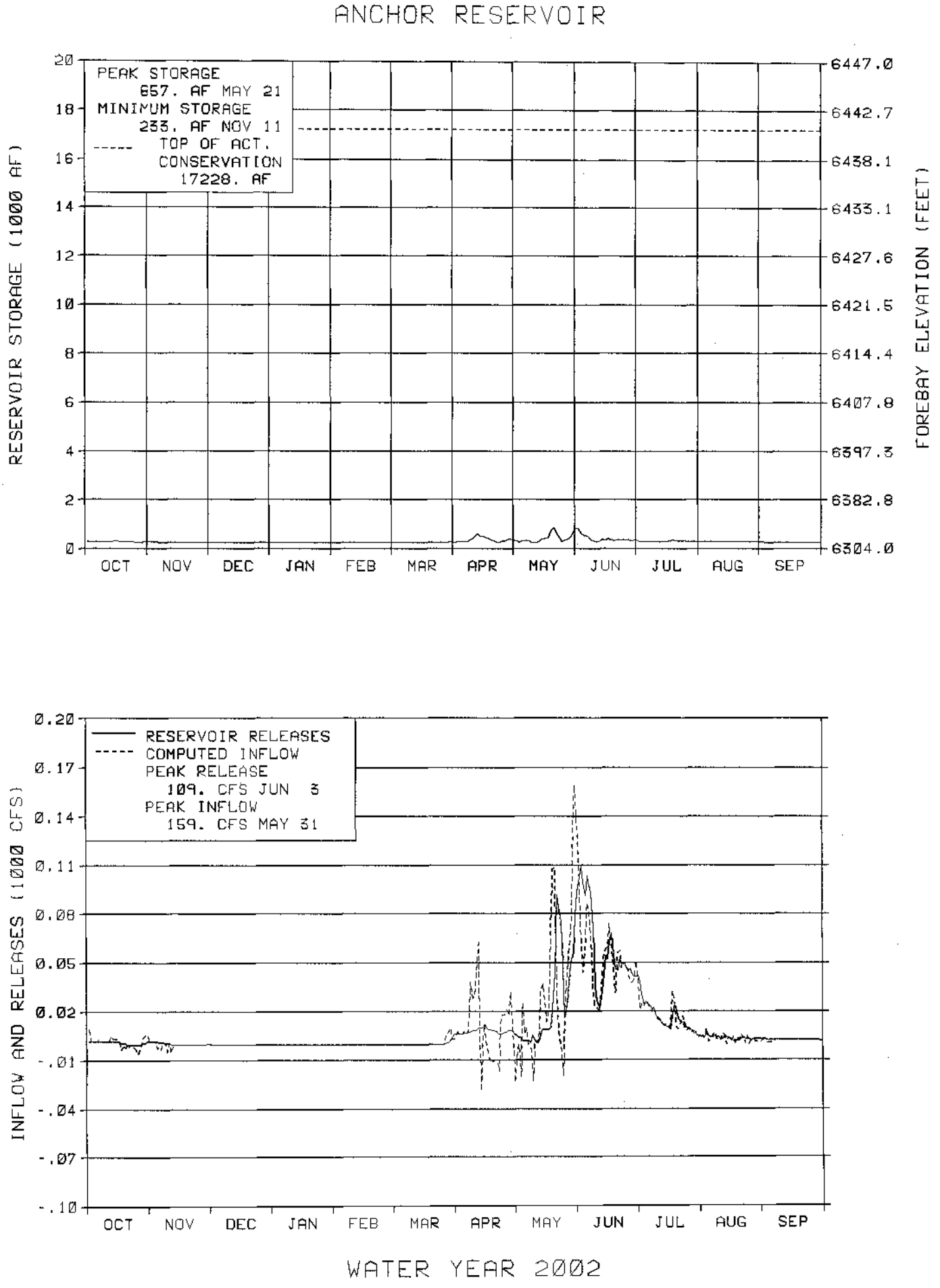
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW*	DATE
ANNUAL TOTAL (AF)	6,970	OCT 001-SEP 002	6,966	OCT 001-SEP 002
DAILY PEAK (cfs)	159	**MAY 31, 2002**	109	JUNE 02, 2002
DAILY MINIMUM (cfs)	0	WINTER MONTHS	0	WINTER MONTHS
PEAK SPILLWAY FLOW (cfs)			0	
TOTAL SPILLWAY FLOW (AF)			**0**	

* Outflow is water released from the Dam to Owl Creek. When the reservoir level rises above approximately 6412.80 feet, water flows through a notch in one of the dikes into the sinkhole area. This water is neither measured nor accounted for. In 2002, no water flowed over the notch in the dike.

	INFLOW		OUTFLOW*		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	0.1	14	0.1	13	0.3	150
NOVEMBER	0.0	0	0.0	0	0.2	100
DECEMBER	0.0	0	0.0	0	0.2	100
JANUARY	0.0	0	0.0	0	0.2	100
FEBRUARY	0.0	0	0.0	0	0.2	100
MARCH	0.1	33	0.0	0	0.3	100
APRIL	0.6	75	0.5	100	0.4	67
MAY	1.7	36	1.4	38	0.7	41
JUNE	3.2	40	3.6	62	0.3	8
JULY	1.0	40	1.0	27	0.3	11
AUGUST	0.2	100	0.2	9	0.3	43
SEPTEMBER	0.1	14	0.1	9	0.3	100
ANNUAL	7.0	37	7.0	37		

* Average is for the 1991-2001 period. This period was used because of the availability of data at Anchor Reservoir.

FIGURE WYG4


ANCHOR RESERVOIR
PEAK STORAGE
857. AF MAY 21
MINIMUM STORAGE
233. AF NOV 11
TOP OF ACT. CONSERVATION
17228. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
20
18
16
14
12
10
8
6
4
2
0
6447.0
6442.7
6438.1
6433.1
6427.6
6421.5
6414.4
6407.8
6397.3
6382.8
6304.0
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
109. CFS JUN 3
PEAK INFLOW
159. CFS MAY 31
INFLOW AND RELEASES (1000 CFS)
0.20
0.17
0.14
0.11
0.08
0.05
0.02
-.01
-.04
-.07
-.10
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
WATER YEAR 2002

Shoshone Project & Buffalo Bill Unit

The primary features of the original Shoshone Project included Buffalo Bill Dam and Reservoir, Shoshone and Heart Mountain Powerplants, and the canal and lateral systems for the Willwood, Frannie, Garland, and Heart Mountain Divisions. In 1982, The Buffalo Bill Dam and Reservoir Modifications, Shoshone Project, Wyoming, was authorized as the Buffalo Bill Unit (P-S MBP). The principal modifications to Buffalo Bill Dam included raising the height of the Dam by 25 feet, reconstructing the Shoshone Powerplant, construction of the Buffalo Bill Powerplant, construction of the Spirit Mountain Energy Dissipation Structure, pressurizing a portion of the Shoshone Canyon Conduit, enlarging and gating the spillway, constructing a visitor's center, and constructing the North Fork, South Fork, and Diamond Creek Dikes. The North and South Fork dust abatement dikes were designed to impound water in areas of the enlarged reservoir that would be dry during periods when the reservoir elevation is low, thereby reducing the dust producing area of the reservoir. The Diamond Creek protective dike prevents the enlarged reservoir from inundating Irma Flats.

Controlled releases are made from Buffalo Bill Reservoir at four points: (1) Shoshone Canyon Conduit, (2) Shoshone Powerplant, (3) the gated spillway, and (4) two river outlets (jetflow valve and 4X5 high pressure gates). Water for the Willwood, Frannie, and Garland Divisions of the Shoshone Project is diverted from the Shoshone River below Buffalo Bill Reservoir. The Heart Mountain Division is irrigated by water released at the dam through a high-level outlet to the Shoshone Canyon Conduit and Heart Mountain Canal. Irrigation releases for the project land along the Shoshone River are made through the Shoshone Powerplant, the river outlets, or through the Shoshone Canyon Conduit and Buffalo Bill or Heart Mountain Powerplants. Project works presently serve about 93,000 acres in the four divisions.

The Heart Mountain Powerplant, Shoshone Project, with a nameplate capability of 6,000 kilowatts (kW) and maximum discharge capacity of 360 cfs, is located at the end of the Shoshone Canyon Conduit, which obtains its water from a high-level outlet, elevation 5233.00 feet, at Buffalo Bill Dam. The powerplant is located 3.5 miles below the dam and discharges into the Shoshone River. During the summer months, the water released through the powerplant is used to satisfy a portion of the irrigation demand of lands diverting directly from the river.

The Shoshone Powerplant, reconstructed as part of the Buffalo Bill Unit (P-S MBP), is located on the left bank of the Shoshone River at the toe of Buffalo Bill Dam and releases water directly into the Shoshone River. After 56 years of continuous use, the Shoshone Powerplant became obsolete because of safety problems beyond economical repair. On March 21, 1980, the original plant was taken out of service. In 1992 one of the three generating units was replaced with a new unit having a nameplate capability of 3,000 kW. In accordance with the Revised Instream Flow Operation Agreement for Buffalo Bill Reservoir Enlargement, a flow of at least 100 cfs is released to the Shoshone River at the base of the dam at all times. This is normally achieved by the use of the Shoshone

Powerplant. A maximum release of approximately 200 cfs can be made through the Shoshone Powerplant.

The Buffalo Bill Powerplant, Buffalo Bill Unit (P-S MBP), with a nameplate capability of 18,000 kW, is located about one mile downstream of Buffalo Bill Dam on the right bank of the Shoshone River. Water for generation at this powerplant is supplied through a portion of the Shoshone Canyon Conduit, which was pressurized as part of the Buffalo Bill modification. The maximum discharge capacity of the three units at the Buffalo Bill Powerplant is 930 cfs. The powerplant first generated power on July 15, 1992.

Spirit Mountain Powerplant, Buffalo Bill Unit (P-S MBP), with a nameplate capability of 4,500 kW and discharge capacity of 560 cfs, is a newly constructed energy dissipator powerplant located about one mile downstream of Buffalo Bill Dam on the right side of the Shoshone River. Water released through the Shoshone Canyon Conduit for Heart Mountain Canal or Heart Mountain Powerplant must be routed through the Spirit Mountain Powerplant or through associated sleeve valves to dissipate energy in the transition from the pressurized portion of the Shoshone Canyon Conduit to the free flow portion of the conduit. The discharge from the powerplant must be carried away from the plant by use of the free-flow conduit and operation of the powerplant depends on the availability of the conduit to carry discharged water.

Buffalo Bill Dam and Reservoir, located on the Shoshone River above Cody, Wyoming, is a multipurpose facility that provides water for domestic, irrigation, municipal, fish and wildlife, power, and recreational use. It also provides a small amount of incidental flood control, although no storage space is specifically reserved for this purpose. The total storage capacity of the reservoir is 646,565 AF at elevation 5393.50 feet, the top of the active conservation pool.

Storage in Buffalo Bill Reservoir at the beginning of water year 2002 was 267,375 AF at elevation 5337.62 feet. As the irrigation season ended, releases to the river were gradually reduced to 100 cfs over the two day period from October 5 to October 7. Because the total inflow to Buffalo Bill Reservoir in water year 2001 was less than 650,000 acre-feet, water year 2001 was determined to be a critical low flow year based on the criteria of the Revised Instream Flow Agreement for Buffalo Bill Reservoir. In years following a critical low flow year or critical low flow period, the Agreement requires a minimum flow of 100 cfs be provided in the river at the Shoshone Powerplant and a minimum flow of 100 cfs be provided in the river at the Buffalo Bill Powerplant. Irrigation deliveries to the Heart Mountain Canal were discontinued on October 12. The release of 100 cfs was maintained until April 22, when increases were required to meet the irrigation demands of the downstream districts.

During October, reservoir inflow was 53 percent of average and the reservoir level continued to fall until irrigation releases ended. After the release was reduced to 100 cfs the reservoir began to recover and at the end of the month there was 261,283 AF in storage at elevation 5336.33 feet. Inflow during November and December was below average but the inflow was greater than the release and the reservoir content gradually increased through the period. Precipitation from October through December was below average in the mountains and the snowpack in the Buffalo Bill watershed stood at 70 percent of average on January 1. Forecasts of the April-July snowmelt runoff are made each month beginning in January and continuing through June for Buffalo Bill Reservoir. Conditions on January 1 indicated that 550,000 AF of runoff could be expected to flow into Buffalo Bill Reservoir during the April through July period, which was 80 percent of the 30 year average. Snowfall was less than average during the month of January until a storm on the 22 nd brought some precipitation to the Shoshone basin, resulting in a five percent increase to 75 percent of average on February 1. Even though conditions improved slightly during January, the February 1 snowmelt runoff forecast remained at 550,000 AF. February precipitation was below average and the snowpack slipped back to 70 percent of average on March 1. Streamflow above Buffalo Bill was below normal in February, with reservoir inflow amounting to 65 percent of average for the month. At the end of February, Buffalo Bill Reservoir held 283,285 AF of water at elevation 5340.66 feet. With precipitation continuing to lag behind average, the March 1 forecast of April-July runoff was reduced to 490,000 AF, which was 71 percent of average. Compared to the previous months of the winter, March was the exception as almost 150 percent of average precipitation fell in the mountains above Buffalo Bill. Snowpack in the basin increased 12 percent over the month to 82 percent of average on April 1 and the April snowmelt runoff forecast was increased slightly to 500,000 AF.

Releases to the river were increased beginning on April 22 in order to meet the downstream irrigation demand and Heart Mountain Canal diversions began on April 24. Releases were adjusted as needed through the month and the reservoir held 299,764 AF of water at elevation 5343.62 feet on April 30. The snowpack accumulated at a rate that was slightly greater than average during April and the forecast prepared on May 1 indicated 550,000 AF of water could be expected to flow into Buffalo Bill during the April - July period. As releases were made for irrigation, the reservoir level declined until mid-May when the snowmelt runoff began to enter the reservoir. Inflow to the reservoir peaked on June 1 with an average for the day of 8,793 cfs. While snowmelt runoff continued well into July, the inflow during each month of water year 2002 was less than average. The reservoir reached a maximum content of 518,009 AF at elevation 5376.87 feet on July 10. This was 128,556 AF and 16.63 feet below the top of the active conservation pool.

The total inflow to Buffalo Bill during the April through July runoff period was 552,535 AF, which was 81 percent of average. At the end of water year 2002, the reservoir held 358,903 AF at elevation 5353.59 feet.

Total energy generated at all powerplants that directly receive water out of Buffalo Bill Reservoir totaled 83,585,000 kWh in 2002. Of this total amount, Heart Mountain Powerplant generated 17,267,000 kWh, Buffalo Bill Powerplant generated 38,521,000 kWh, Shoshone Powerplant generated 15,004,000 kWh and Spirit Mountain Powerplant generated 12,793,000 kWh. The powerplants used 505,514 AF of water to generate this amount of energy, or 88 percent of the total water released from Buffalo Bill Reservoir during water year 2002. About 33 percent, or 188,089 AF of the total water released from Buffalo Bill Reservoir, was released to the Heart Mountain Canal for irrigation purposes.

Important Events - 2002

October 7, 2001: The release to the Shoshone River was reduced to approximately 100 cfs, at which time control of releases was returned to the Bureau of Reclamation.

October 12, 2001: Irrigation diversions to the Heart Mountain Canal were discontinued for the 2001 irrigation season.

April 18, 2002: Control of releases to the Shoshone River was turned over to the irrigation district in order to meet irrigation demands.

April 22, 2002: Releases from Buffalo Bill Reservoir were increased to meet downstream irrigation demand.

April 24, 2002: Irrigation releases to the Heart Mountain Canal were initiated for the 2002 irrigation season.

July 10, 2002: Buffalo Bill Reservoir reached a maximum elevation for the water year of 5376.87 feet.

Additional hydrologic and statistical information pertaining to the operations of Buffalo Bill Reservoir during water year 2002 can be found in Table WYT8 and Figure WYG5.

TABLE WYT8
HYDROLOGIC DATA FOR WATER YEAR 2002
BUFFALO BILL RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	5259.60	41,748	41,748
TOP OF ACTIVE CONSERVATION	5393.50	646,565	604,817

STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	5337.62	267,375	OCT 01,2001
END OF YEAR	5353.59	358,903	SEP 30, 2002
ANNUAL LOW	5335.21	255,303	OCT 13, 2001
HISTORIC LOW*		19,080	JAN 31, 1941
ANNUAL HIGH	5376.87	518,009	JUL 10, 2002
HISTORIC HIGH	5393.51	646,647	JUL 30, 1996

* Prior to 1952 daily records are not available. End of month data was used to determine the historic low.

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW*	DATE
ANNUAL TOTAL (AF)	665,708	OCT 001-SEP	573,765	OCT 001-SEP 002
DAILY PEAK (cfs)	8,793	002	1,244	MAY 14, 2002
DAILY MINIMUM (cfs)	15	JUN 01, 2002	81	NOV 05, 2001
PEAK SPILLWAY FLOW (cfs)		JAN 19, 2002	0	
TOTAL SPILLWAY FLOW (AF)			**0**	

*Daily peak and minimum are releases to the river

	INFLOW		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	13.5	53	19.1	48	261.3	62
NOVEMBER	16.9	77	5.6	25	272.5	64
DECEMBER	10.4	61	6.8	29	276.1	66
JANUARY	10.6	68	6.5	30	280.2	68
FEBRUARY	9.0	65	5.9	28	283.3	70
MARCH	10.8	55	6.6	25	287.5	74
APRIL	30.5	73	18.2	30	300.0	85
MAY	118.5	77	102.2	92	316.0	80
JUNE	289.0	93	108.7	61	496.3	90
JULY	114.5	64	118.8	64	492.1	88
AUGUST	24.4	48	100.9	91	415.6	83
SEPTEMBER	17.6	62	74.3	96	358.9	82
ANNUAL	665.7	76	573.8	65		

APRIL - JULY INFLOW (AF)	
ACTUAL	AVERAGE
552,535	686,000

* Average for inflow and outflow is the 1972-2001 period. Because of the enlargement of Buffalo Bill Reservoir in 1992, the period of record which average content is based on is 1993-2001.

FIGURE WYG5

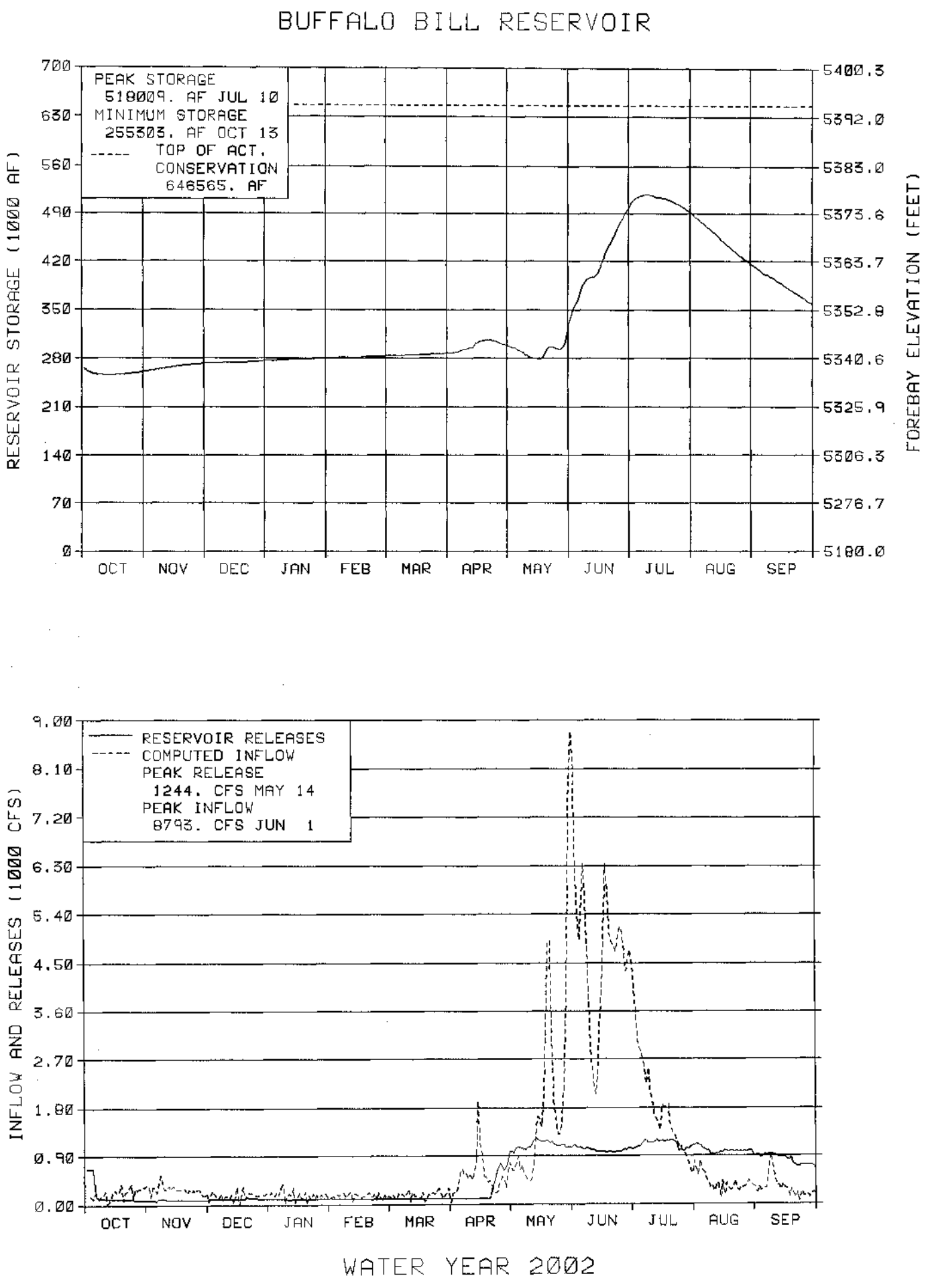

BUFFALO BILL RESERVOIR
PEAK STORAGE
518009. AF JUL 10
MINIMUM STORAGE
255303. AF OCT 13
TOP OF ACT. CONSERVATION
646565. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
700
630
560
490
420
350
280
210
140
70
0
5400.3
5392.0
5383.0
5373.6
5363.7
5352.8
5340.6
5325.9
5306.3
5276.7
5180.0
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
1244. CFS MAY 14
PEAK INFLOW
8793. CFS JUN 1
INFLOW AND RELEASES (1000 CFS)
9.00
8.10
7.20
6.30
5.40
4.50
3.60
2.70
1.80
0.90
0.00
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
WATER YEAR 2002

Table WYT9

WATER YEAR 2002 ACTUAL OUTAGES FOR WYOMING POWERPLANTS

Facilities	Description of Work	Outage Dates
B OYS EN		
Unit 1	Annual Maintenance	10/01/01 - 10/31/01
Unit 1	Annual Maintenance	01/14/02 - 02/11/02
Unit 1	Bad Differential Relay	02/13/02 - 02/25/02
Unit 2	Annual Maintenance	11/01/01 - 01/03/02
PILOT BUTTE		
Unit 1	Annual Maintenance	02/13/02 - 03/14/02
Unit 1	Transformer K4 Maintenance	09/23/02 - 09/26/02
Unit 2	Annual Maintenance	02/13/02 - 03/14/02
Unit 2	Transformer K4 Maintenance	09/23/02 - 09/26/02
BUFFALO BILL		
Buffalo Bill Powerplant		
Unit 1	Spirit Mountain Butterfly Valve Repair	10/22/01 - 11/16/01
Unit 1	Annual Maintenance	03/18/02 - 03/27/02
Unit 1	WAPA Replacing Power Transformers	05/14/02 - 05/17/02
Unit 2	Spirit Mountain Butterfly Valve Repair	10/22/01 - 11/16/01
Unit 2	Annual Maintenance	12/17/01 - 01/03/02
Unit 2	WAPA Replacing Power Transformers	05/14/02 - 05/17/02
Unit 3	Spirit Mountain Butterfly Valve Repair	10/22/01 - 11/16/01
Unit 3	Annual Maintenance	01/07/02 - 02/14/02

Table WYT9 (continued)

WATER YEAR 2002 ACTUAL OUTAGES FOR WYOMING POWERPLANTS

Facilities	Description of Work	Outage Dates
Buffalo Bill		
Shoshone Powerplant		
Unit 3	Annual Maintenance	11/09/01 - 12/10/01
Unit 3	Transformer KZ3A Maintenance	01/14/02 - 01/18/02
Heart Mountain Powerplant		
Unit 1	Spirit Mountain Butterfly Valve Repair	10/22/01 - 11/16/01
Unit 1	Sleeve Valve Coating	11/26/01 - 12/10/01
Unit 1	Annual Maintenance	02/25/02 - 03/12/02
Unit 1	Shoshone Canyon Conduit Free Flow Inspection	04/18/02 - 04/23/02
Unit 1	Voltage Regulator Problems	05/25/02 - 05/28/02
Spirit Mountain Powerplant		
Unit 1	Spirit Mountain Butterfly Valve Repair and Annual Maintenance	10/22/01 - 11/16/01
Unit 1	Sleeve Valve Coating	11/26/01 - 12/10/01
Unit 1	Shoshone Canyon Conduit Free Flow Inspection	04/18/02 - 04/23/02
Unit 1	WAPA Replacing Power Transformers	05/14/02 - 05/17/02

SUMMARY OF RESERVOIR OPERATIONS FOR BENEFIT OF FISH AND WILDLIFE, ENVIRONMENT AND RECREATION

Bull Lake Reservoir

Bull Lake Reservoir storage at the beginning of water year 2002 was 26,878 AF. Releases were lowered to approximately 25 cfs when irrigation season ended to maintain the elevation of the reservoir while providing a flow for the fishery in Bull Lake Creek. The reservoir level remained fairly stable through mid-May when the reservoir level began to increase. Irrigation demands required increased releases beginning around May 10, but as runoff began releases were reduced as demands were met by flows in the Wind River. Reservoir levels in water year 2002 varied from elevation 5787.32 feet to 5754.78 feet or a range of 32.54 feet of fluctuation. For the second consecutive year, Midvale Irrigation District and the Bureau of Reclamation entered into an agreement whereby Boysen Reservoir storage water was used by Midvale in exchange for water stored in Bull Lake. This arrangement allowed Bull Lake to remain at a higher level than if Midvale would have had to release the water from Bull Lake to meet irrigation demands. At the end of water year 2002, the content of Bull Lake was 40,907 AF. The Boysen water stored in Bull Lake by exchange will be transferred back to Boysen through the winter to provide a flow for the fishery in Bull Lake Creek.

Boysen Reservoir

Boysen Reservoir storage at the beginning of water year 2002 was 51 percent of average and 41 percent of capacity. Following the 2001 irrigation season, the release from Boysen Dam was set at approximately 400 cfs and was maintained at that rate until irrigation demands required increased flows. The month of April is normally when many species of fish spawn in the upper few feet of the reservoir. To insure a successful spawn, it is important to limit the amount of drawdown on the reservoir during April. By April 22, the release of 400 cfs from the Dam was not adequate to meet irrigation demands and increases were made to satisfy downstream demands. The reservoir level fluctuated slightly during the month but the reservoir level on April 30 was the same as on March 31. May inflow was the second lowest of record for the month and the reservoir level fell 3.51 feet during May. The reservoir level was at 4693.26 feet going into the Memorial Day weekend and new end of month content record lows were set each month of the summer.

Buffalo Bill Reservoir

Following the 2001 irrigation season, the release from Buffalo Bill Reservoir was set at approximately 100 cfs. Based on the criteria of the Revised Instream Flow Operation Agreement for Buffalo Bill Reservoir Enlargement, water year 2001 was a critical low flow year and therefore a release of 100 cfs at the Shoshone Powerplant and a total flow of 100 cfs was required at Buffalo Bill Powerplant.

Reclamation continues to support the Wyoming Game and Fish (WGF) Reservoir Research Branch in its efforts to assess fish population and species distribution in the enlarged reservoir through the use of hydro-acoustic technology and by providing WGF river access and an aluminum tube for planting fish in the Shoshone River off the deck of Buffalo Bill Powerplant.

At Buffalo Bill Reservoir, as the reservoir is drawn down, the lake bed is exposed to wind erosion which creates dust in the reservoir area and in the Town of Cody, Wyoming. As a part of the enlargement of Buffalo Bill Reservoir, dust abatement dikes were built on the upper ends of the North and South Fork arms of the reservoir to hold water in areas that would become dry as the reservoir level decreased, thus reducing the area of dry lake bed. Except for the period from June 26 through August 10, the water surface elevation of Buffalo Bill Reservoir was below the top of the North Fork Dike (elevation 5370.00 feet). The maximum elevation of the pool behind the South Fork Dike of 5393.40 feet occurred on July 29, 2002, and the minimum elevation of 5384.09 feet occurred on April 16, 2002. At the maximum elevation, the pool behind the South Fork Dike covered 200 surface acres. On October 13, 2001, when the water surface elevation of Buffalo Bill Reservoir was at its low for the year of 5335.21 feet, the water surface elevation of the pool behind the North Fork Dike was approximately 5365.00 feet and the water surface elevation of the pool behind the South Fork Dike was 5387.66 feet. At the minimum reported elevation of Buffalo Bill Reservoir, 184 more acres of land would have been exposed without the ability to store water behind the North Fork Dike and 145 more acres would have been exposed without the South Fork Dike.

The number of stoplogs at the outlet control structure on the South Fork Dike has been increased to maintain the static water level of the pond behind the dike at approximately 5391.00 feet at the end of the water year. The increased elevation provides a larger impoundment behind the dike, benefiting waterfowl as well as the fishery.

The Diamond Creek Dike was constructed to prevent Diamond Creek and the Irma Flats area from being inundated by the enlarged reservoir. Inflows from the Diamond Creek drainage enter Diamond Creek Reservoir which lies at the base of the dike. This water is then pumped into Buffalo Bill Reservoir in order to maintain the elevation of Diamond Creek Reservoir between a maximum of 5340.40 feet and a minimum of 5339.50 feet with the normal water surface elevation being 5340.00 feet. In water year 2002, 8,841 AF of water was pumped from Diamond Creek Reservoir into Buffalo Bill Reservoir.

Reservoir levels during all of water year 2002 were adequate for recreational activities on Buffalo Bill Reservoir.

WEATHER SUMMARY FOR NORTH AND SOUTH DAKOTA FOR WATER YEAR 2002

October precipitation was below average at Belle Fourche, Deerfield, Dickinson, and Heart Butte, and above average at the remaining reservoirs.

November precipitation was below to much below average at all reservoirs.

December precipitation was very much below average at all reservoirs except Angostura, which was about normal.

January precipitation was below too much below average at all reservoirs. At the end of January, NRCS in Newcastle, Wyoming, reported snow depth readings for the drainage basins in this area as less than half of the 30-year average.

February precipitation was near or slightly above average at Belle Fourche and Keyhole reservoirs and below to much below average at the remaining reservoirs.

March precipitation varied from much below average at Dickinson and Jamestown to below average at Belle Fourche, Shadehill, and Heart Butte to above average at the remaining reservoirs.

April precipitation was average at Pactola and below average at the remaining reservoirs.

May precipitation was below to much below average at all reservoirs.

June precipitation was below to much below average at all reservoirs.

July precipitation varied from near average at Pactola and Heart Butte to above average at Dickinson and Jamestown, to below average at the remaining reservoirs.

August precipitation varied from much below average at Shadehill to average at Heart Butte and Jamestown to above average at Angostura and Dickinson.

September precipitation varied from much below average at Shadehill, Dickinson, Heart Butte, and Jamestown to average to much above average at the remaining reservoirs.

Total annual precipitation for Reclamation facilities in North Dakota, South Dakota, and Wyoming are shown on Table DKT1.

TABLE DKT1 Total Annual Precipitation for Reclamation Facilities in North Dakota, South Dakota, and Wyoming in Inches			
Reservoir	**2002 Total**	**Average Total**	**Percent**
Angostura 1/	52.67	61.15	86
Belle Fourche 2/	32.27	54.00	60
Deerfield	13.39	19.93	67
Keyhole 3/	21.74	32.76	66
Pactola	17.34	20.31	85
Shadehill 4/	15.38	32.40	48
Dickinson	10.72	16.11	67
Lake Tschida	10.59	16.85	63
Jamestown	13.47	16.89	80

1/ Angostura Reservoir's annual precipitation includes data from Oelrichs, SD, Hot Springs, SD, Newcastle, WY, and Red Bird, WY climate stations.

2/ Belle Fourche Reservoir's annual precipitation includes data from Newell, SD, Spearfish, SD, and Sundance, WY climate stations.

3/ Keyhole Reservoir's annual precipitation includes data from Gillette, WY and Sundance, WY climate conditions.

4/ Shadehill Reservoir's annual precipitation includes data from Camp Crook and Lemmon, SD climate stations.

Table DKT2 displays the changes in storage content between September 30, 2001, and September 30, 2002, at reservoirs in North and South Dakota and eastern Wyoming.

TABLE DKT2
Comparison of End-of-Month Storage Content for
Reservoirs in North Dakota, South Dakota, and Eastern Wyoming
in Acre-Feet

Reservoir	Storage September 30, 2001	Storage September 30, 2002	Change in Storage
Angostura	103,223	78,232	-25,001
Belle Fourche	97,200	56,009	-41,191
Deerfield	14,952	15,056	104
Keyhole	157,334	116,993	-40,341
Pactola	52,882	46,233	-6,649
Shadehill	105,444	81,212	-24,232
Dickinson	7,714	6,440	-1,274
Lake Tschida	57,878	52,188	-5,690
Jamestown	25,664	29,779	4,115

FLOOD BENEFITS FOR RESERVOIRS IN NORTH AND SOUTH DAKOTA AND EASTERN WYOMING

Several Bureau of Reclamation reservoirs in northeastern Wyoming, South Dakota, and North Dakota provided flood relief during water year 2002. They are: Lake Tschida on the Heart River near Glen Ullin, North Dakota; Angostura on the Cheyenne River near Hot Springs, South Dakota; Pactola on Rapid Creek near Rapid City, South Dakota; Keyhole on the Belle Fourche River near Moorcroft, Wyoming; and Jamestown on the James River near Jamestown, North Dakota.

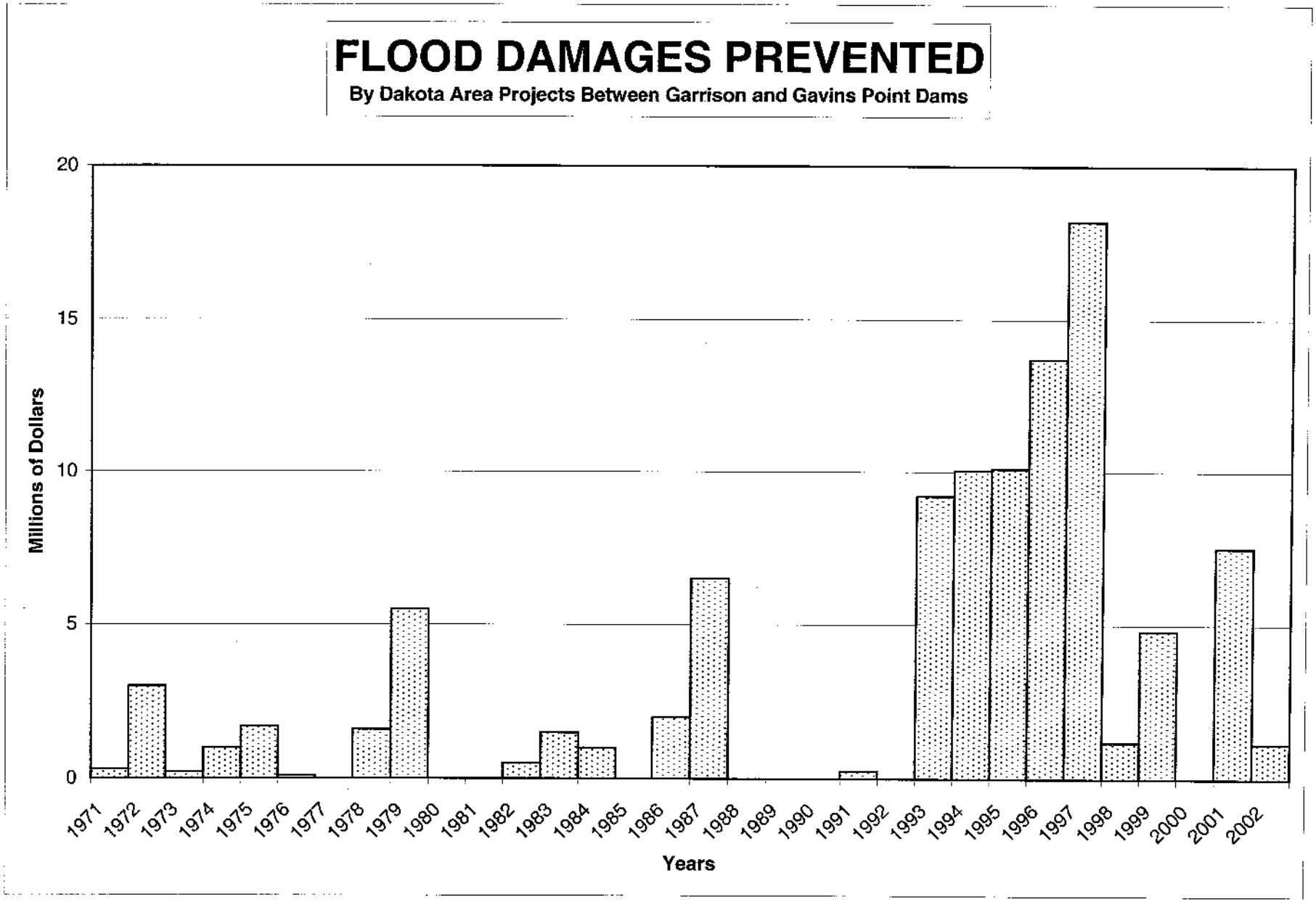
The information on the distribution of flood damages prevented is provided by the Corps of Engineers. The distribution of flood damages prevented for each reservoir are as follows:

FLOOD DAMAGE PREVENTED
(THOUSANDS OF DOLLARS)

	LOCAL	MAIN STEM	2002TOT AL	PREVIOUS ACCUMULATION	1950-2002 ACCUM. TOTAL
Lake Tschida	0.0	0.0	11.8	$13,149.8	13161.6
Shadehill	0.0	0.0	0.0	$ 8974.5	8974.5
Angostura	0.0	0.0	0.0	$ 21.1	21.1
Pactola	0.0	0.0	0.0	$ 3106.7	3106.7
Keyhole	0.0	0.0	0.0	$ 3652.8	3652.8
Jamestown	0.0	0.0	0.0	$86672.3	86672.3
Total			11.8	115577.2	115589.0

Flood damages prevented by Dakotas Area Office between Garrison and Gavins Point Dams are shown on Figure DKG1.

FIGURE DKG1


FLOOD DAMAGES PREVENTED
By Dakota Area Projects Between Garrison and Gavins Point Dams
Millions of Dollars
20
15
10
5
0
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
Years

UNIT OPERATIONAL SUMMARIES FOR WATER YEAR 2002

EDWARD ARTHUR PATTERSON LAKE

BACKGROUND

Edward Arthur Patterson Lake (Dickinson Reservoir) is located on the Heart River near Dickinson, North Dakota. The reservoir has a dead capacity of 356 acre-feet, an inactive capacity of 100 acre-feet and an active conservation capacity of 8,156 acre-feet (for a total top of active conservation capacity of 8,612 acre-feet at elevation 2420.00). Reservoir water is utilized for irrigating approximately 230 acres along the Heart River downstream of the dam and for municipal use by the city of Dickinson.

A sedimentation survey conducted in 1991 determined that 1,885 acre-feet of sediment had accumulated in the lake since May 1950. The average annual sediment accumulation rate is 46 acre-feet per year for the 41-year period of operation.

WATER YEAR 2002 OPERATIONS SUMMARY

The water surface elevation of Dickinson Reservoir at the beginning of water year 2002 was 2419.22 feet with storage of 7,714 acre-feet, which is 0.78 feet, and 898 acre-feet below the top of the conservation pool (elevation 2420.0). Dickinson Reservoir peaked at elevation 2420.59 feet on June 10th with 9,335 acre-feet of storage. Reservoir releases were made throughout the summer for irrigation of Dickinson-Heart River Mutual Aid Corporation lands and for municipal water needs (golf course irrigation) by the city of Dickinson. Water was also released from the irrigation bypass valve to help the water quality in the reservoir. The reservoir elevation on September 30, 2002 was 2418.00, which is 2.00 feet below the top of conservation pool.
The maximum daily discharge occurred on June 10th with 513 CFS. Reservoir net inflows for water year 2002 totaled 2,394 acre-feet, 12 percent of average and the ninth lowest in 51 years of records. Precipitation for the water year totaled 10.72 inches, which is 67 percent of average.

MONTHLY STATISTICS FOR WATER YEAR 2002

Record low and near record low inflows were recorded in the following months:
October's inflow was its 4th lowest October in 51 years of record
July's inflow was its 3rd lowest July in 51 years of record
August's inflow was its 4th lowest August in 51 years of record
September's inflow was its lowest September in 51 years of record

Record end of month content was recorded in the following months:
May's end of month content was its lowest May in 51 years of record.
July's end of month content was the lowest July in 51 years of record.

Additional statistical information on E.A. Patterson Lake and its operations during 2002 can be found on Table DKT3 and Figure DKG2.

TABLE DKT3
HYDROLOGIC DATA FOR 2002
E.A. PATTERSON DAM AND LAKE

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2,405.00	456	456
TOP OF ACTIVE CONSERVATION	2,420.00	8,612	8,156
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL			

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2,419.22	7,714	OCT 01, 2001
END OF YEAR	2,418.00	6,440	SEP 30, 2002
ANNUAL LOW	2,418.00	6,440	SEP 30, 2002
ANNUAL HIGH	2,420.59	9,335	JUN 10, 2002
HISTORIC HIGH	2,422.19	**9,348	MAR 21, 1997

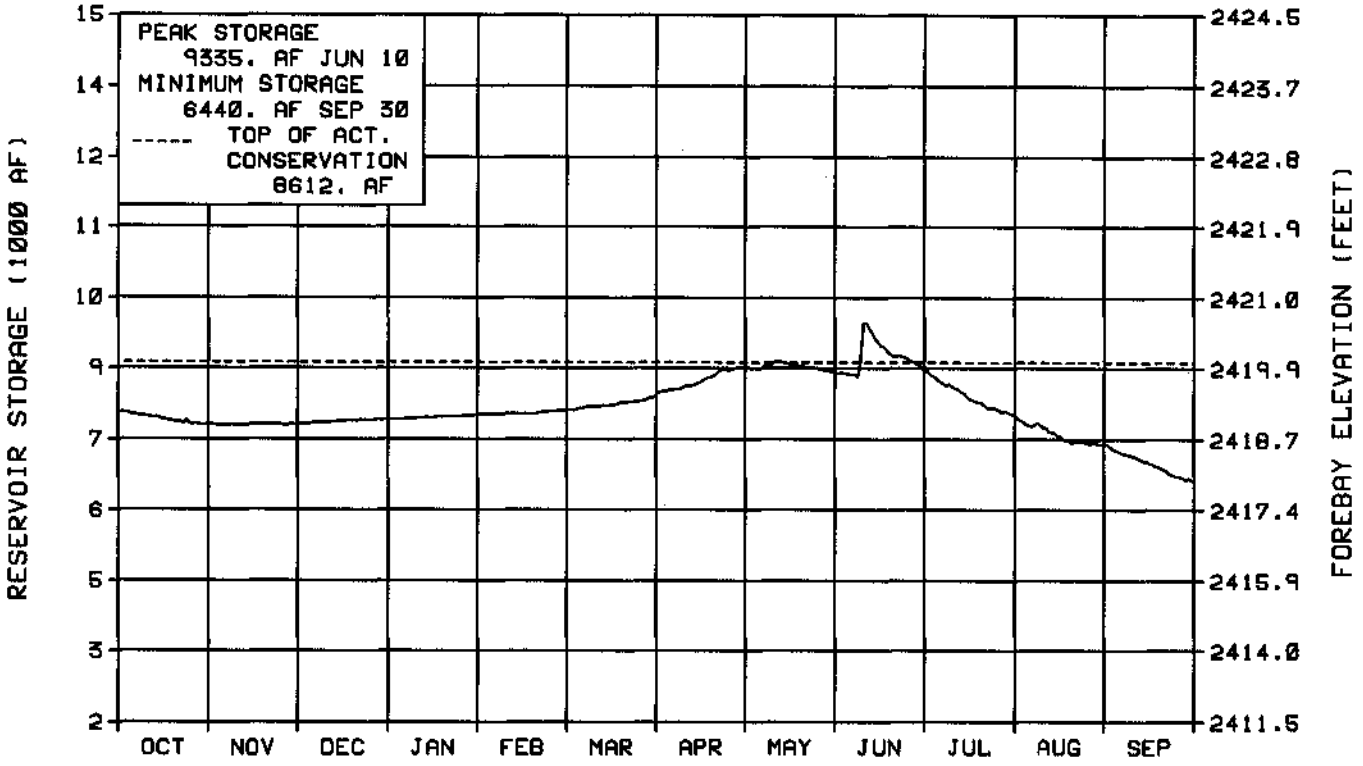
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	2,394	OCT 01-SEP 02	3,668	OCT 01-SEP 02
DAILY PEAK (CFS)	884	JUN 10, 2002	513	JUN 10, 2002
DAILY MINIMUM (CFS)	0	*	0	*
PEAK SPILL (CFS)			513	JUN 10,2002
TOTAL SPILL (AF)			3,618	OCT01-SEPO2

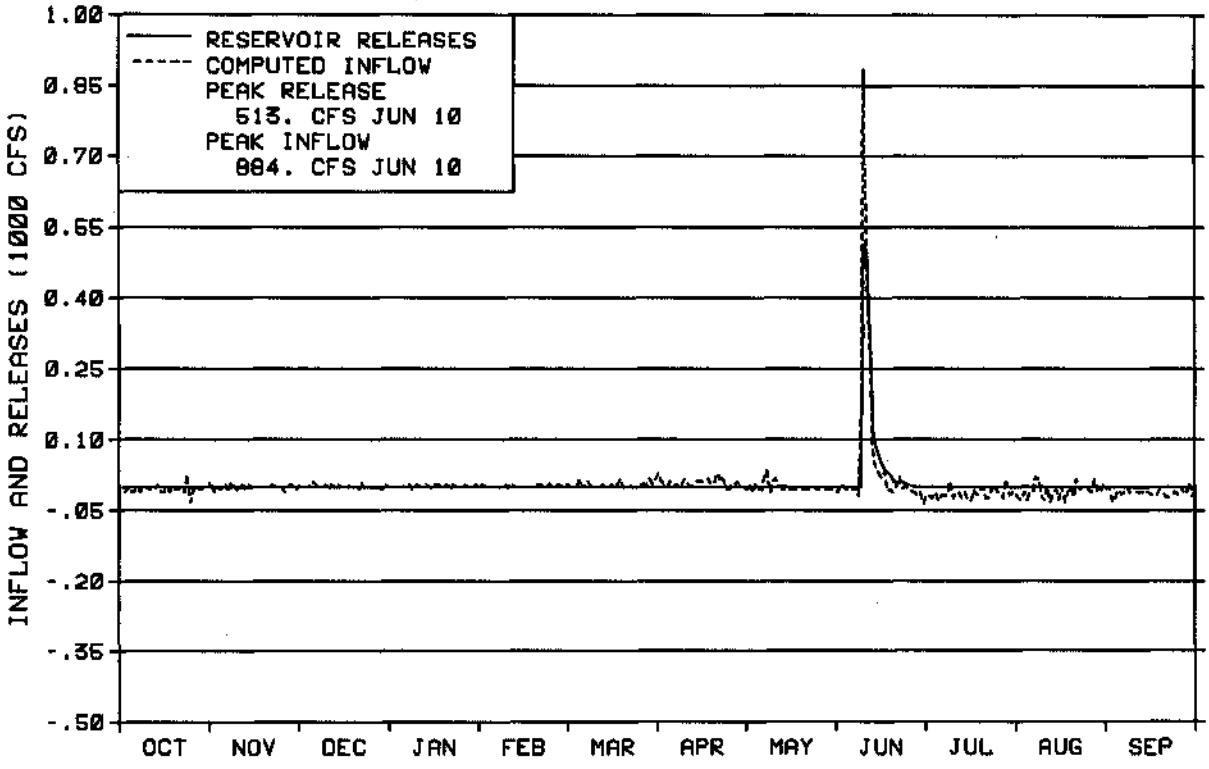
MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	-231	NA	0	NA	7,483	135
NOVEMBER	-11	NA	0	NA	7,472	136
DECEMBER	87	70	0	NA	7,559	138
JANUARY	88	49	0	NA	7,647	139
FEBRUARY	78	7	0	NA	7,725	132
MARCH	269	4	0	NA	7,994	117
APRIL	523	12	0	NA	8,517	123
MAY	-83	NA	0	NA	8,434	123
JUNE	3,727	145	3,668	144	8,493	123
JULY	-845	NA	0	NA	7,647	117
AUGUST	-538	NA	0	NA	7,109	117
SEPTEMBER	-669	NA	0	NA	6,440	111
ANNUAL	2,394	12	3,668	19		
APRIL-JULY	3,322	32				

* Frequently observed during fall and winter months
** Due to new area-capacity table, the capacity that corresponds to the new historic high elevation is less than a previous historic high capacity amount (11,520 AF @ Elevation 2421.08 on June 9, 1982)

DKG2

E. A. PATTERSON LAKE





WATER YEAR 2002

LAKE TSCHIDA

BACKGROUND

Lake Tschida (Heart Butte Reservoir) is located on the Heart River near Glen Ullin, North Dakota, and is downstream of Dickinson Reservoir. The reservoir has a dead capacity of 5,227 acre-feet, an active conservation capacity of 61,915 acre-feet (for a total top of active conservation capacity of 67,142 acre-feet at elevation 2064.50), and an exclusive flood control space of 147,027 acre-feet. Flood control storage is located above the crest of an ungated glory-hole spillway. Lake Tschida is primarily used for flood control and the authorized irrigation of up to 13,100 acres of which about 7,320 acres are now being irrigated. A sedimentation survey was conducted on Heart Butte Reservoir in 1992 and summarized in 1994.

WATER YEAR 2002 OPERATIONS SUMMARY

The water surface elevation of Heart Butte Reservoir at the beginning of water year 2002 was 2061.58 feet with 57,878 acre-feet of storage, which is 2.92 feet, and 9,264 acre-feet below the top of the conservation pool (elevation 2064.50). Heart Butte Reservoir peaked at elevation 2063.85 on June 19th with 65,016 acre-feet of storage. The reservoir elevation on September 30th 2002 was 2059.66, which is 4.84 feet below the top of conservation pool. The maximum daily discharge occurred on July 16th with 100 CFS. Reservoir inflows for water year 2002 totaled 19,838 acre-feet, 23 percent of average. Precipitation for the water year totaled 10.59 inches, which is 63 percent of average.

MONTHLY STATISTICS FOR WATER YEAR 2002

Record low and near record low inflows were recorded in the following months:

March's inflow was its 3rd lowest March in 53 years of record

Record end of month content was recorded in the following months:

March's end of month content was its 7th highest March in 53 years of record.
May's end of month content was its 6th highest May in 53 years of record.
July's end of month content was its 7th highest July in 53 years of record.
August's end of month content was its 7th highest August in 53 years of record.

No other record inflow or end of month content was recorded at Lake Tschida in Water Year 2002,

Additional statistical information on Lake Tschida and its operations during 2002 can be found on Table DKT4 and Figure DKG3.

TABLE DKT4
HYDROLOGIC DATA FOR 2002
LAKE TSCHIDA

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2,030.00	5,227	5,227
TOP OF ACTIVE CONSERVATION	2,064.50	67,142	61,915
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL	2,094.50	214,169	147,027

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2,061.58	57,878	OCT 01, 2001
END OF YEAR	2,059.66	52,188	SEP 30, 2002
ANNUAL LOW	2,059.61	52,045	SEP 27, 2002
ANNUAL HIGH	2,063.85	65,016	JUN 19, 2002
HISTORIC HIGH	2,086.23	173,203	APR 09, 1952

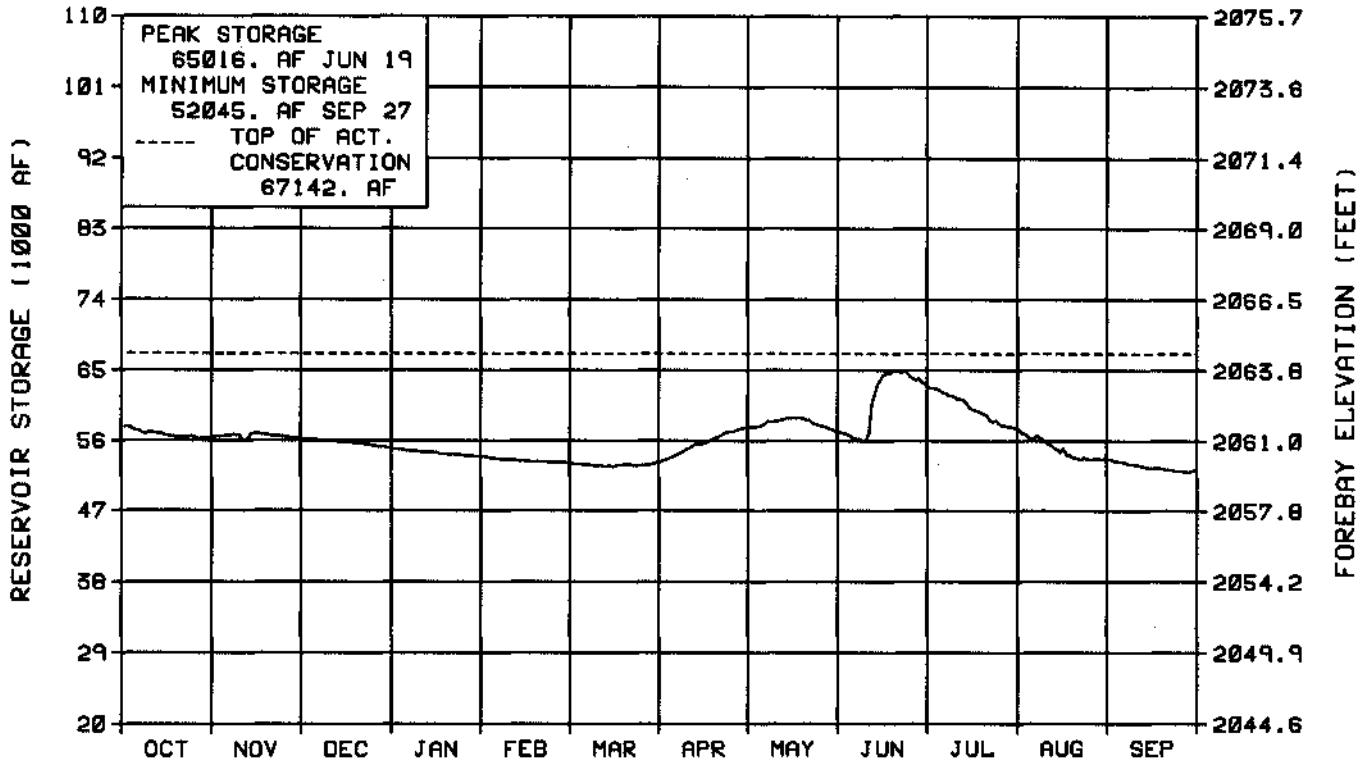
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	19,838	OCT 01-SEP 02	25,557	OCT 01-SEP 02
DAILY PEAK (CFS)	1,898	JUN 12, 2002	100	JUL 16, 2002
DAILY MINIMUM (CFS)	0	*	0	*
PEAK SPILL (CFS)			0	
TOTAL SPILL (AF)			0	OCT 01-SEP02

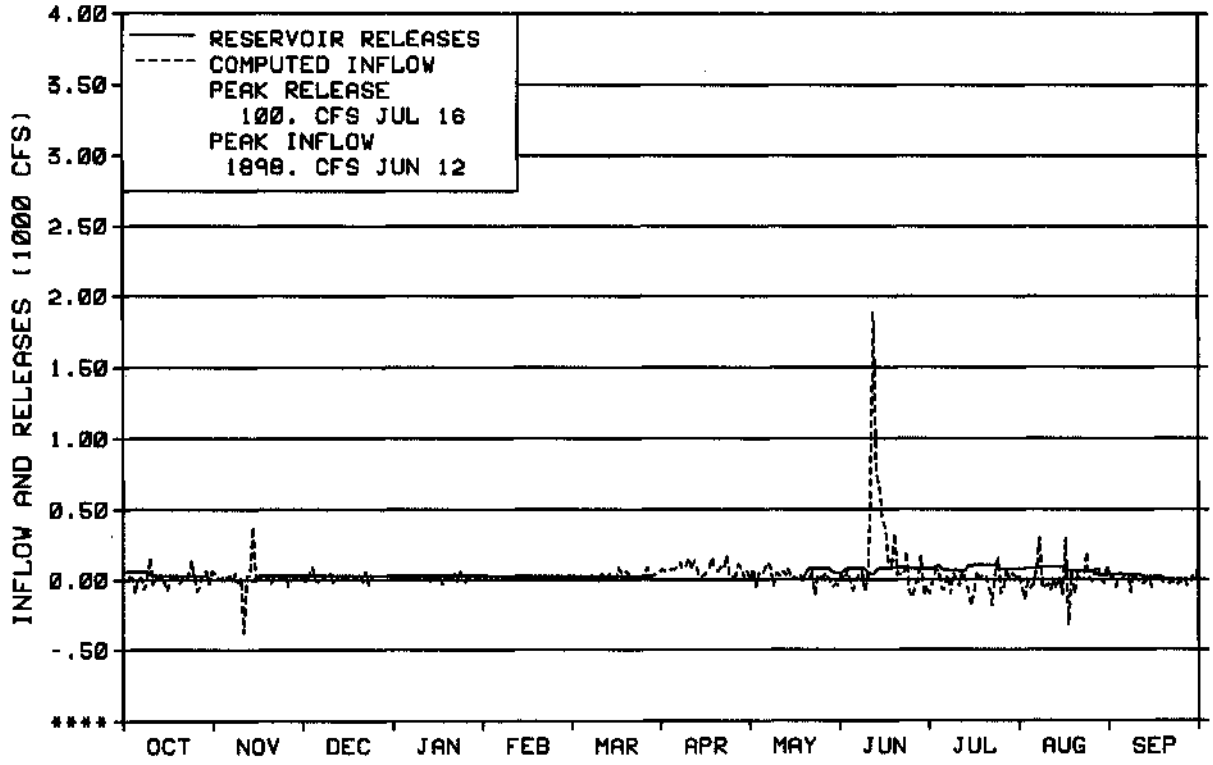
MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	714	71	2,106	109	56,486	96
NOVEMBER	640	53	941	62	56,185	96
DECEMBER	510	64	1,732	128	54,963	95
JANUARY	692	78	1,723	146	53,932	94
FEBRUARY	670	17	1,459	73	53,172	89
MARCH	1,449	5	1,420	8	53,201	75
APRIL	4,494	18	0	NA	57,695	81
MAY	1,139	11	1,685	14	57,149	82
JUNE	10,591	99	4,430	48	63,310	89
JULY	-695	NA	5,011	62	57,604	86
AUGUST	120	10	4,056	77	53,668	85
SEPTEMBER	-486	NA	994	37	52,188	86
ANNUAL	19,838	23	25,557	30		
APRIL-JULY	15,529	31				

* Frequently observed during fall and winter months

DKG3

LAKE TSCHIDA





WATER YEAR 2002

JAMESTOWN RESERVOIR

BACKGROUND

Jamestown Reservoir is located on the James River above Jamestown, North Dakota. The reservoir has a dead capacity of 822 acre-feet, an active conservation capacity of 24,535 acre-feet (for a total top of active conservation capacity of 25,357 acre-feet at elevation 1428.00), a joint-use capacity of 6,153 acre-feet, and an exclusive flood control space of 189,468 acre-feet. The exclusive flood control storage is all below the crest of an ungated glory-hole spillway, and flood control releases are controlled by the gated outlets. The joint-use space is available for flood control at the beginning of spring runoff and is used for conservation purposes during the summer months. In 1998 the "Arrowwood National Wildlife Refuge Final Environmental Impact Statement" and the "Operating Principles for the Oakes Test Area Water Supply From the James River" changed the Top of Joint Use pool from elevation 1432.67 to 1431.00, and the Top of Conservation pool from elevation 1429.8 to 1428.0.

Flood control operations of Jamestown Reservoir are conducted in accordance with a 1975 Field Working Agreement between the Corps of Engineers and Bureau of Reclamation. The agreement provides for coordinated releases from Jamestown Reservoir and Pipestem Reservoir, a Corps of Engineers project. The Corps of Engineers is in the process of rewriting their Water Control Manual for operations of Jamestown and Pipestem Reservoirs.

WATER YEAR 2002 OPERATIONS SUMMARY

The water surface elevation of Jamestown Reservoir at the beginning of water year 2002 was 1428.12 feet, with storage of 25,587 acre-feet, which is 0.12 feet, and 230 acre-feet above the top of the conservation pool (elevation 1428.00). Jamestown Reservoir peaked at elevation 1431.91 feet on April 24th with 33,644 acre-feet of storage. The maximum daily discharge occurred on October 1st with 150 CFS. The reservoir elevation on September 30, 2002 was 1430.21, which is 2.21 feet above the top of active conservation pool. Reservoir inflows for water year 2002 totaled 18,622 acre-feet, 43 percent of average. Precipitation for the water year totaled 13.47 inches at 80 percent of average.

MONTHLY STATISTICS FOR WATER YEAR 2001

Record low and near record low inflows were recorded in the following months:

October's inflow was its 8th lowest October in 49 years of record
November's inflow was its 10th lowest November in 49 years of record
December's inflow was its 6th lowest December in 49 years of record
January's inflow was its 3rd lowest January in 49 years of record
February's inflow was its 5th lowest February in 49 years of record

Record end of month content was recorded in the following months:

January's end of month content was its $_{8}$th lowest January in 49 years of record.
February's end of month content was its 4th lowest February in 49 years of record.

No other record inflow or end of month content was recorded at Jamestown Reservoir in Water Year 2002,

Additional statistical information on Jamestown Reservoir and its operations during 2002 can be found on Table DKT5 and Figure DKG4.

TABLE DKT5
HYDROLOGIC DATA FOR 2002
JAMESTOWN RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	1,400.00	822	822
TOP OF ACTIVE CONSERVATION	1,428.00	25,357	24,535
TOP OF JOINT USE	1,431.00	31,510	6,153
TOP OF EXCLUSIVE FLOOD CONTROL	1,454.00	220,978	189,468

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	1,428.12	25,587	OCT 01, 2001
END OF YEAR	1,430.21	29,779	SEP 30, 2002
ANNUAL LOW	1,428.02	25,395	OCT 08, 2001
ANNUAL HIGH	1,431.91	33,644	APR 24, 2002
HISTORIC HIGH	1,445.91	126,067	MAY 05, 1997

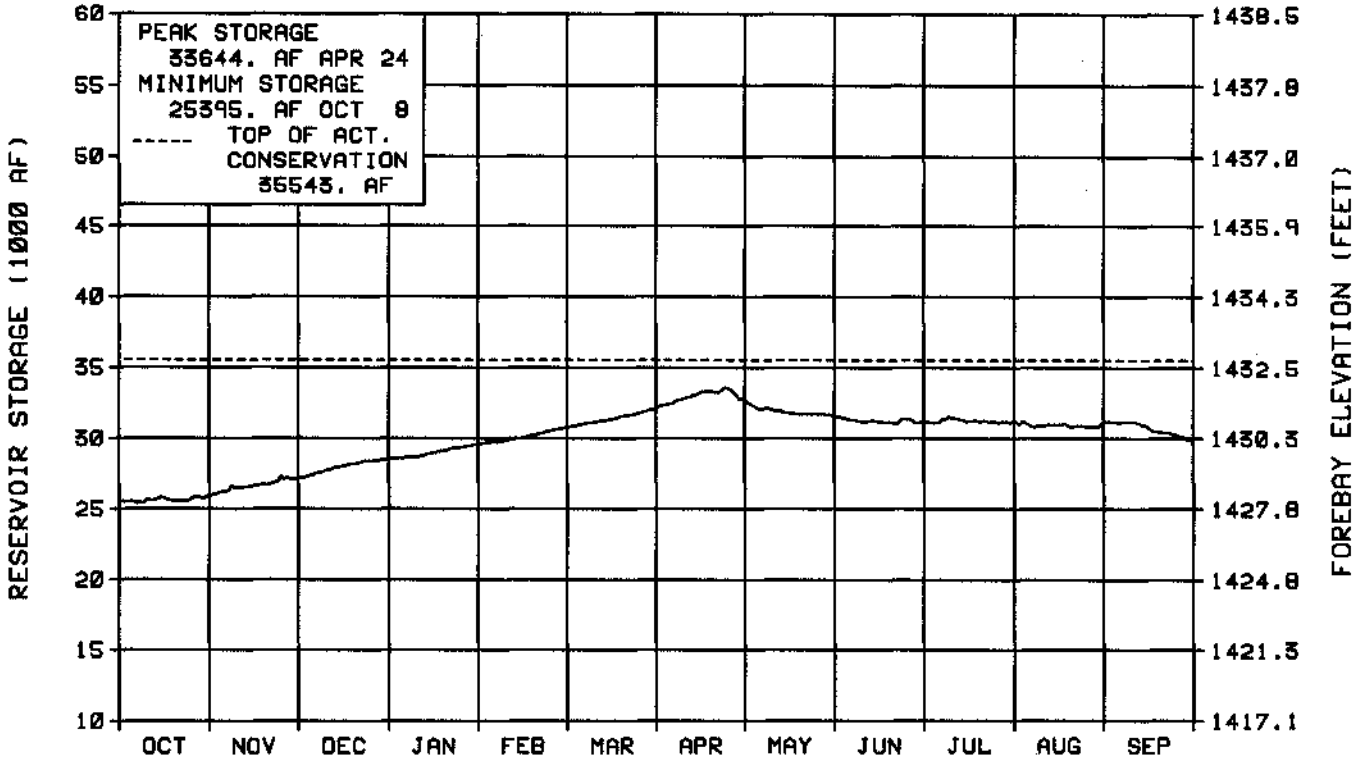
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	18,622	OCT 01-SEP 02	14,507	OCT 01-SEP 02
DAILY PEAK (CFS)	185	JUNE 23, 2001	150	OCT 01, 2001
DAILY MINIMUM (CFS)	0	*	0	*
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

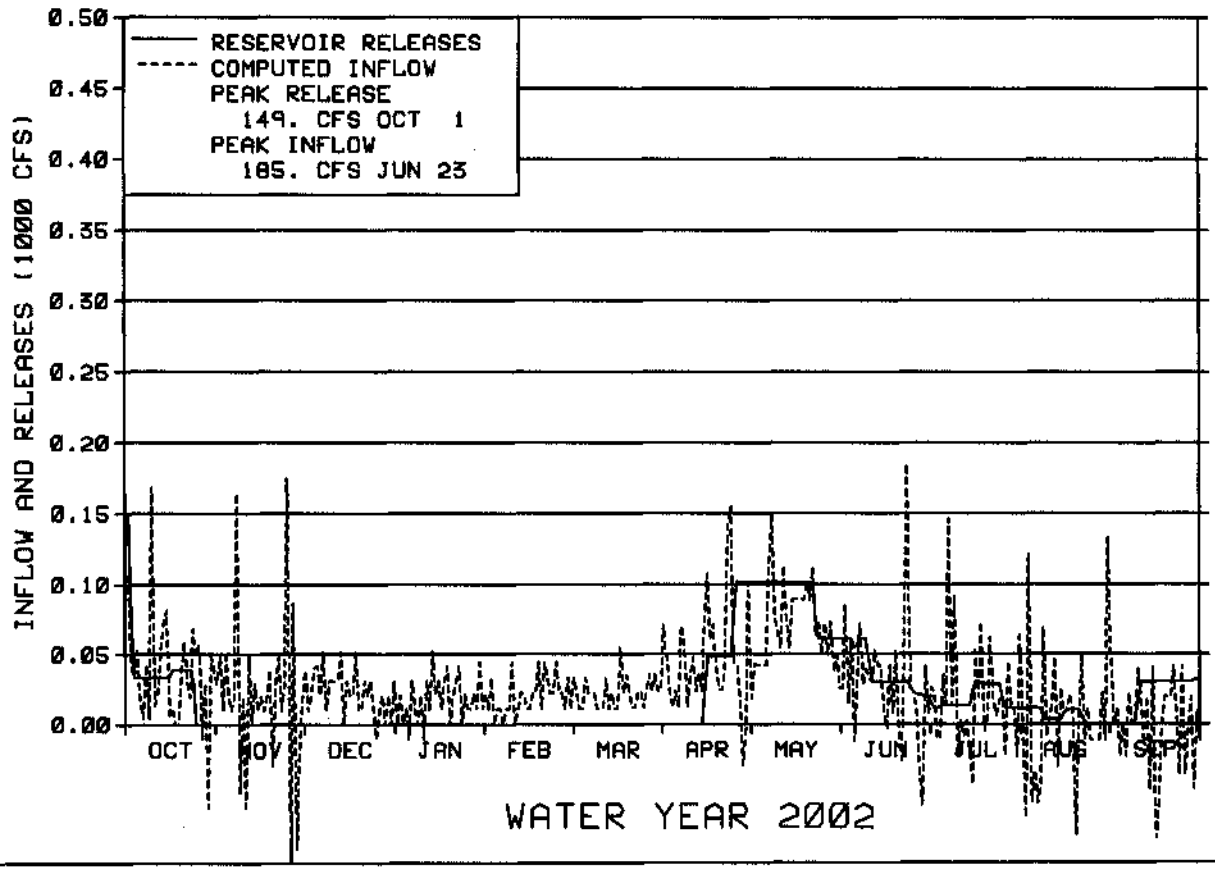
MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	2,238	271	1,932	88	25,970	105
NOVEMBER	1,208	169	0	0	27,178	112
DECEMBER	1,343	435	0	0	28,521	117
JANUARY	1,105	863	0	0	29,626	122
FEBRUARY	1,117	481	0	0	30,743	126
MARCH	1,353	21	0	0	32,096	106
APRIL	2,798	15	2,071	28	32,823	79
MAY	4,314	63	5,533	52	31,604	83
JUNE	1,771	73	2,238	33	31,137	93
JULY	1,189	42	1,101	23	31,225	99
AUGUST	281	11	325	7	31,181	106
SEPTEMBER	-95	0	1,308	35	29,779	112
ANNUAL	18,622	43	14,507	34		
APRIL-JULY	10,072	33				

* Frequently observed during fall and winter months

DKG4

JAMESTOWN RESERVOIR





DEERFIELD RESERVOIR

BACKGROUND

Deerfield Reservoir is located on Castle Creek, a tributary of Rapid Creek above Rapid City. Deerfield Reservoir (Rapid Valley Project) and Pactola Reservoir (Rapid Valley Unit, **P-S MBP),** furnish a supplemental irrigation supply to about 8,900 acres in the Rapid Valley Water Conservancy District and furnish replacement water for a portion of the water used from Rapid Creek by Rapid City. The majority of prior rights to the flows of Rapid Creek during the irrigation season are held by individuals and ditch companies in the Rapid Valley Water Conservancy District.

In 1985, Deerfield Dam was modified to accommodate a larger flood as determined from the results of the Probable Maximum Flood analysis. These modifications consisted of raising the crest of the dam 38 feet, excavating an unlined auxiliary spillway, removing and filling in the old spillway, and extending the existing emergency gate passageway to the new control house at the higher crest elevation. The reservoir has a total capacity of 15,655 acre-feet with an additional 26,655 acre-feet of surcharge capacity.

During the winter of **95-96** the hollow jet valves were removed to allow the installation of the jet flow valves as part of the outlet works modification contract. The work was done to improve fish habitat in 1.5 miles of the creek immediately downstream of the dam. The stream improvement project was a cooperative effort accomplished by the City of Rapid City, Rapid Valley Water Conservancy District, Black Hills Fly Fishers, Bureau of Reclamation, US Forest Service, and **SD** Game Fish and **Parks.** The project was to modify the outlet works of Deerfield Dam by installing Jet Flow Gates to allow greater minimum winter releases than the 6-in bypass is capable of providing.

WATER YEAR 2002 **OPERATIONS** SUMMARY

Inflows for Deerfield reservoir were slightly below average for water year 2002. The water year began with 14,952 acre-feet of storage, at elevation 5906.30. Water year 2002 ended with Deerfield at elevation 5906.55 and storage content of 15,056 acre-feet. This was the 3rd highest end of water year content in 49 years of record and happened because the installation of the jet flow gates has allowed for higher winter releases, therefore Deerfield Reservoir is positioned higher before winter freeze up of Castle Creek. Inflows for water year 2002 totaled 9,487 acre-feet 96% of the average. The peak reservoir elevation for the year was 5907.94 on April 14 with 15,639 acre-feet of storage.

Rapid Valley Water Conservancy District ordered 3,858 acre feet of water from Deerfield for the 2002 irrigation season.

The Annual Facility Review was performed by personnel from the Rapid City Field Office and the City of Rapid City.

Annual Emergency Management/Security orientation was conducted on February 25, 2002.

MONTHLY STATISTICS FOR WATER YEAR 2002

October EOM elevation at Deerfield Reservoir was 3rd highest in 49 years of record. October inflow was average. Release at 12 cfs. Deerfield finished the month 1.3 feet from full.

November EOM elevation at Deerfield Reservoir was 3rd highest in 49 years of record. November inflow was above average. Release at 12 cfs. Deerfield finished the month 1.4 feet from full.

December EOM elevation at Deerfield Reservoir was 5th highest in 49 years of record. December inflow was above average. Release at 12 cfs. Deerfield finished the month 0.5 feet from full.

January EOM elevation at Deerfield Reservoir was above average. January inflow was above average. Releases are at 12 cfs. Deerfield finished the month 1.4 feet from full.

February EOM elevation at Deerfield Reservoir was above average. February inflow was above average. Release at 12 cfs. Deerfield finished the month 1.5 feet from full.

March EOM elevation at Deerfield Reservoir was above average. March inflow was below average. Release at 12 cfs. Deerfield finished the month 1.3 feet from full.

April EOM elevation at Deerfield Reservoir was above average. April inflow was 9th highest in 46 years of record. Release at 20 cfs. Deerfield finished the month 0.1 feet from full.

May EOM elevation at Deerfield Reservoir was above average. May inflow was below average. Release at 20 cfs. Deerfield finished the month 0.5 feet from full.

June EOM elevation at Deerfield Reservoir was above average. June inflow was below average. Release at 10 cfs. Deerfield finished the month 1.4 feet from full.

July EOM elevation at Deerfield Reservoir was above average. July inflow was below average. Release at 10 cfs. Deerfield finished the month 1.5 feet from full.

August EOM elevation at Deerfield Reservoir was above average. August inflow was below average. Release at 10 cfs. Deerfield finished the month 1.7 feet from full.

September EOM elevation at Deerfield Reservoir was above average. September inflow was above average. Release at 10 cfs. Deerfield finished the month 1.4 feet from full.

Additional statistical information on Deerfield reservoir and it's operations during 2001 can be found on Table DKT5 and Figure DKG5.

TABLE DKT6
HYDROLOGIC DATA FOR 2002
DEERFIELD RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	5,839.00	151	151
TOP OF ACTIVE CONSERVATION	5,908.00	15,655	15,504
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL			

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	5,906.30	14,952	OCT 01, 2001
END OF YEAR	5,906.55	15,056	SEP 30, 2002
ANNUAL LOW	5,906.22	14,919	AUG 19, 2002
ANNUAL HIGH	5,907.94	15,639	APR 14, 2002
HISTORIC HIGH	5,909.05	16,157	FEB 25, 1985

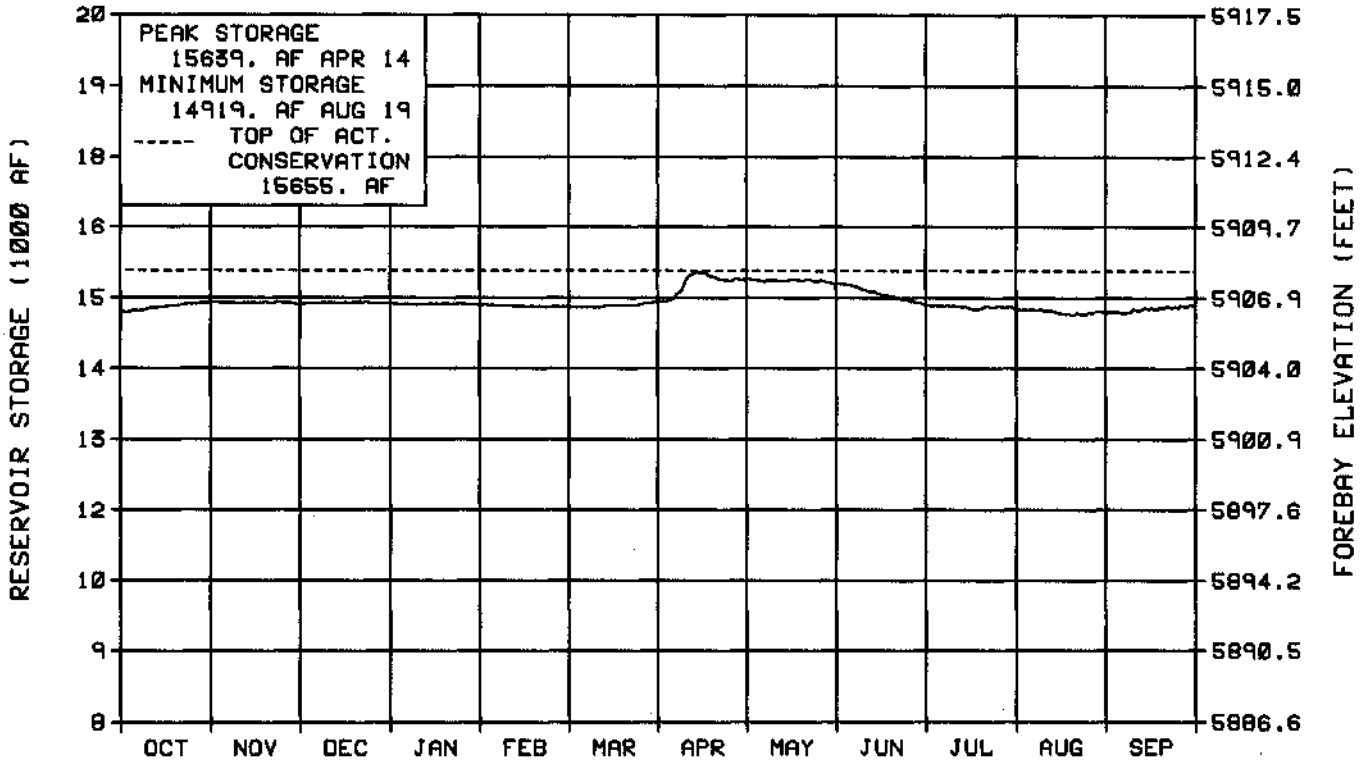
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	9,486	OCT 01-SEP 02	9,382	OCT 01-SEP02
DAILY PEAK (CFS)	76	APR 10, 2002	30	APR 16, 2002
DAILY MINIMUM (CFS)	0	*	10	OCT 01, 2001
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

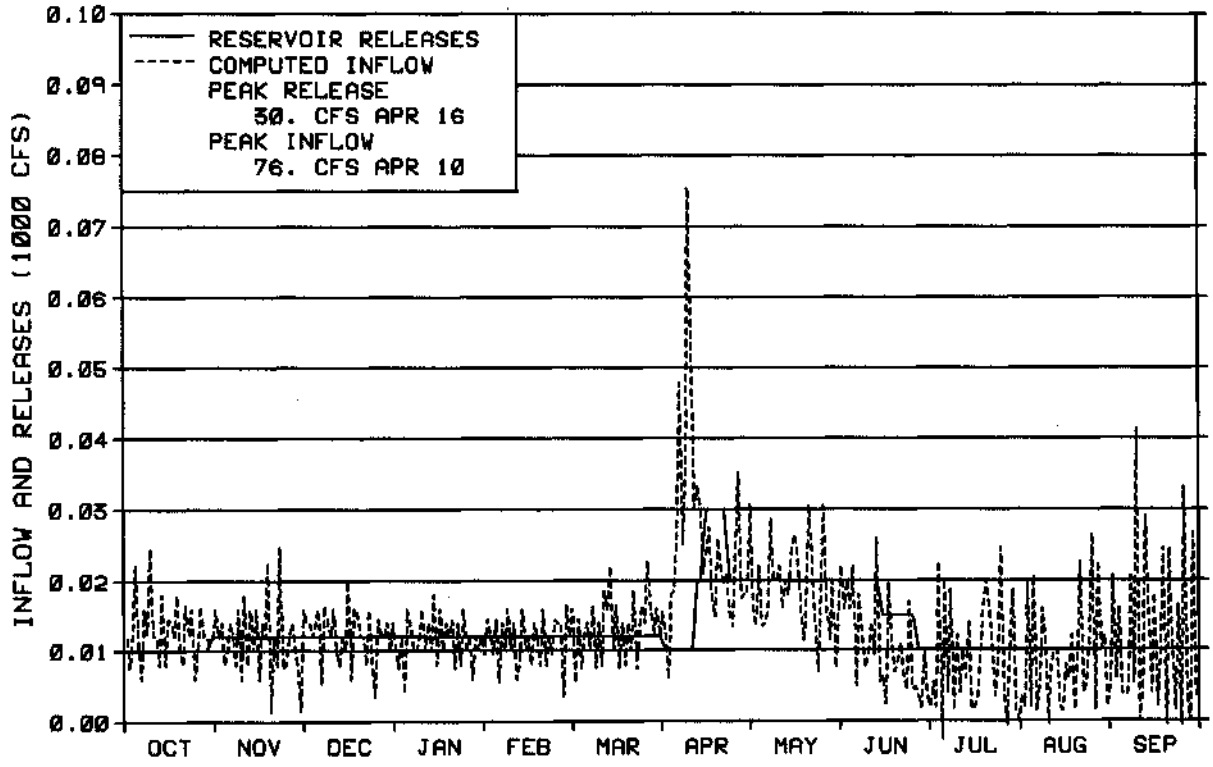
MONTH	INFLOW		OU I PLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	791	118	625	81	15,118	124
NOVEMBER	685	114	714	227	15,089	121
DECEMBER	751	119	738	280	15,102	118
JANUARY	713	113	738	280	15,077	114
FEBRUARY	633	108	666	235	15,044	112
MARCH	816	94	738	127	15,122	110
APRIL	1,511	126	1,125	105	15,508	111
MAY	1,158	85	1,230	92	15,436	111
JUNE	641	52	984	77	15,093	109
JULY	541	63	615	53	15,019	111
AUGUST	544	78	615	48	14,948	115
SEPTEMBER	703	113	595	47	15,056	122
ANNUAL	9,486	96	9,382	96		
APRIL-JULY	3,851	83				

* Frequently observed during fall and winter months

DKG5

DEERFIELD RESERVOIR





WATER YEAR 2002

PA CTOLA RESERVOIR

BACKGROUND

Pactola Reservoir, Rapid Valley Unit (P-S MBP), located on Rapid Creek above Rapid City, South Dakota, acts in conjunction with Deerfield Reservoir, Rapid Valley Project, to furnish a supplemental irrigation supply to about 8,900 acres in the Rapid Valley Water Conservancy District, replacement water for Rapid City, and a supply of domestic water for private water systems both above and below the city. The reservoir is also operated to provide flood control. It has a conservation capacity of 55,972 acre-feet (54,955 acre-feet active) and 43,057 acre-feet of exclusive flood control space. The flood control space is all below the ungated spillway crest, and releases in this pool are controlled by the river outlet works. Rapid City has contracts for Pactola and Deerfield Reservoir water. The Rapid Valley Sanitation District and C&J Sanders Water Company also have contracts for water service from Pactola Reservoir. Operation of the two reservoirs is integrated to maintain as much water as possible in the upstream facility, Deerfield Reservoir, and at the same time maintain a uniform outflow from Deerfield to maximize fishery benefits in the stream between the reservoirs. Since no inflow forecasts are available, the reservoir is normally operated as full as possible. Two Snowtel (North Rapid Creek and Blind Park) sites were installed in the Pactola and Deerfield drainage basin in May of 1990.

As part of the Safety Examination of Existing Structures (Safety of Dams) Program, a study was made in the early 1980's to determine the adequacy of Pactola Dam, Spillway, and Reservoir to safely pass the new Inflow Design Flood (IDF) determined on the basis of present day hydrologic technology. The studies showed that the facility was not able to safely handle the new IDF. Modification work was completed in 1987 and provided sufficient surcharge storage and spillway capacity to pass the IDF. Modification work consisted of raising the crest of the dam 15 feet, widening the existing rock-cut spillway chute and stilling basin from 240 feet to 425 feet, relocating Highway 385 to the new dam crest, extending the existing gate access shaft to the higher crest elevation, and reconstructing a new two-level gate control house at the higher crest elevation.

WATER YEAR 2002 OPERATIONS SUMMARY

Storage in Pactola Reservoir at the beginning of the year was 52,882 acre-feet at elevation 4,576.53, which is 3,118 acre-feet and 3.7 feet below the top of the conservation pool.

The water year maximum storage of 56,139 acre-feet occurred on May 14, 2002 and the annual minimum storage of 46,233 acre-feet occurred on September 30, 2002. At the end of WY 2002, storage was 46,223 acre-feet at elevation 4,568.00 ft, 9,777 acre-feet and 12.2 ft below the top of the conservation pool. Total inflows for the water year 2002 totaled 22,608 acre-feet, 63% of average.

The Annual Facility Review was performed by personnel from the Rapid City Field Office and the city of Rapid City.
Flood control and natural releases met the irrigation and municipal demands for most of the

summer, however dry weather from June through September created demands and 4,635 acre-feet was delivered to the city of Rapid City. Because of dry conditions, operation of Pactola Reservoir provided minimal local and mainstream flood relief during WY2002. The flood plain through Rapid City is designed to pass 6,500 cfs without major property damage, but some areas of the bicycle path near Canyon Lake will inundate at 350 to 400 cfs. Spring releases from Pactola Dam peaked during mid-May at 60 cfs and irrigation releases peaked at 115 cfs in early July.

Annual Emergency Management/Security orientation was conducted on February 25, 2002.

The Pactola Dam – Outlet Works Modification contract (specifications no. 60-00419) was completed on October 5, 2001. Pactola Dam was designed and constructed so that maintenance work in the outlet works required that releases to Rapid Creek be shut off. A 10 inch steel pipeline was permanently installed in the outlet works and a stoplog placed at the end of the stilling basin to allow for continuous releases to be maintained to Rapid Creek during the cleaning and inspection of stilling basin. The stilling basin had not been inspected since 1997 and a large volume of rock was removed by the contractor. The stilling basin was found to be in good condition.

MONTHLY STATISTICS FOR WATER YEAR 2002

October EOM elev, at Pactola, was above average and October inflow was below average. Construction of outlet works by-pass modification was completed on Oct 5. Release at 26 cfs. Pactola ended the month about 3.1 feet from full.

November EOM elev, at Pactola, was above average and November inflow was above average. Release at 26 cfs. Pactola ended the month 2.8 feet from full.

December EOM elev, at Pactola was above average and December inflow was above average. Release at 30 cfs. Pactola ended the month 3.0 feet from full.

January EOM elev at Pactola was above average and January inflow was 7 th highest in 46 years of record. Release at 29 cfs. Pactola ended the month 2.9 feet from full.

February EOM elev at Pactola was above average and February inflow 7 th highest in 46 years of record. Release at 30 cfs. Pactola ended the month 2.8 feet from full.

March EOM elev at Pactola was above average and March inflow was slightly below average. Release at 30 cfs. Pactola ended the month 2.3 feet from full.

April EOM elev at Pactola was much above average and April inflow was below average. Release at 35 cfs. Pactola ended the month 0.3 feet from full.

May EOM elev at Pactola was ^{7th} highest in 46 years. May inflow was much below average. Release at 45 cfs. Pactola ended the month full.

June EOM elev at Pactola was much above average. June inflow was $_{7}$th lowest in 46 years of record. Release at 50 cfs. Pactola ended the month 1.6 feet from full.

July EOM elev at Pactola was above average. July inflow was lowest in 46 years of record. Release at 60 cfs. Pactola ended the month 6.9 feet from full.

August EOM elev at Pactola was above average. August inflow was 4 th lowest in 46 years of record. Release at 53 cfs. Pactola ended the month 11.1 feet from full.

September EOM elev at Pactola was above average. September inflow was below average. Release at 30 cfs. Pactola ended the month 12.2 feet from full.

Additional statistical information on Pactola reservoir and it's operations during 2001 can be found on Table DKT7 and Figure DKG6.

TABLE DKT7
HYDROLOGIC DATA FOR 2002
PACTOLA RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4,456.10	1,017	1,017
TOP OF ACTIVE CONSERVATION	4,580.20	55,972	54,955
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL	4,621.50	99,029	43,057

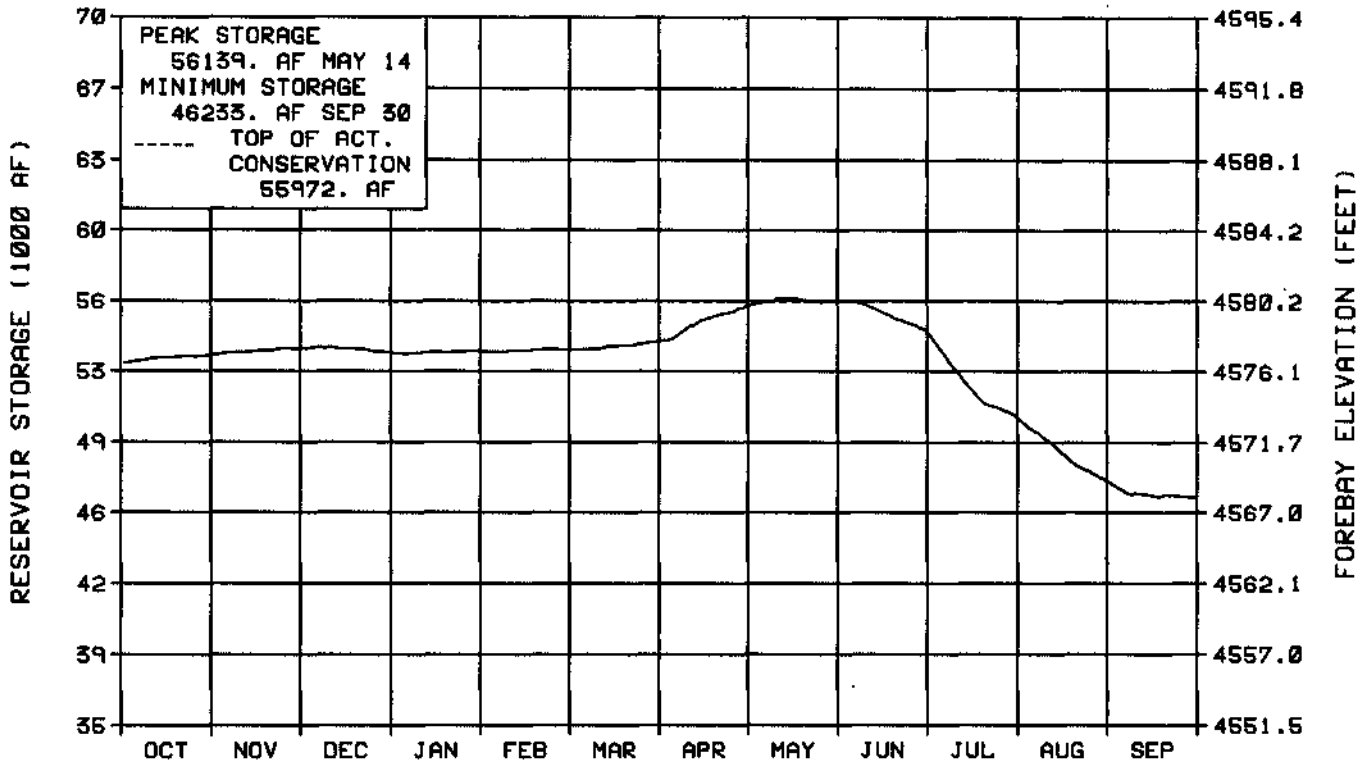
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4,576.53	52,882	OCT 01, 2001
END OF YEAR	4,568.00	46,233	SEP 30, 2002
ANNUAL LOW	4,568.00	46,233	SEP 30, 2002
ANNUAL HIGH	4,580.39	56,139	MAY 14, 2002
HISTORIC HIGH	4,585.87	61,105	MAY 19, 1965

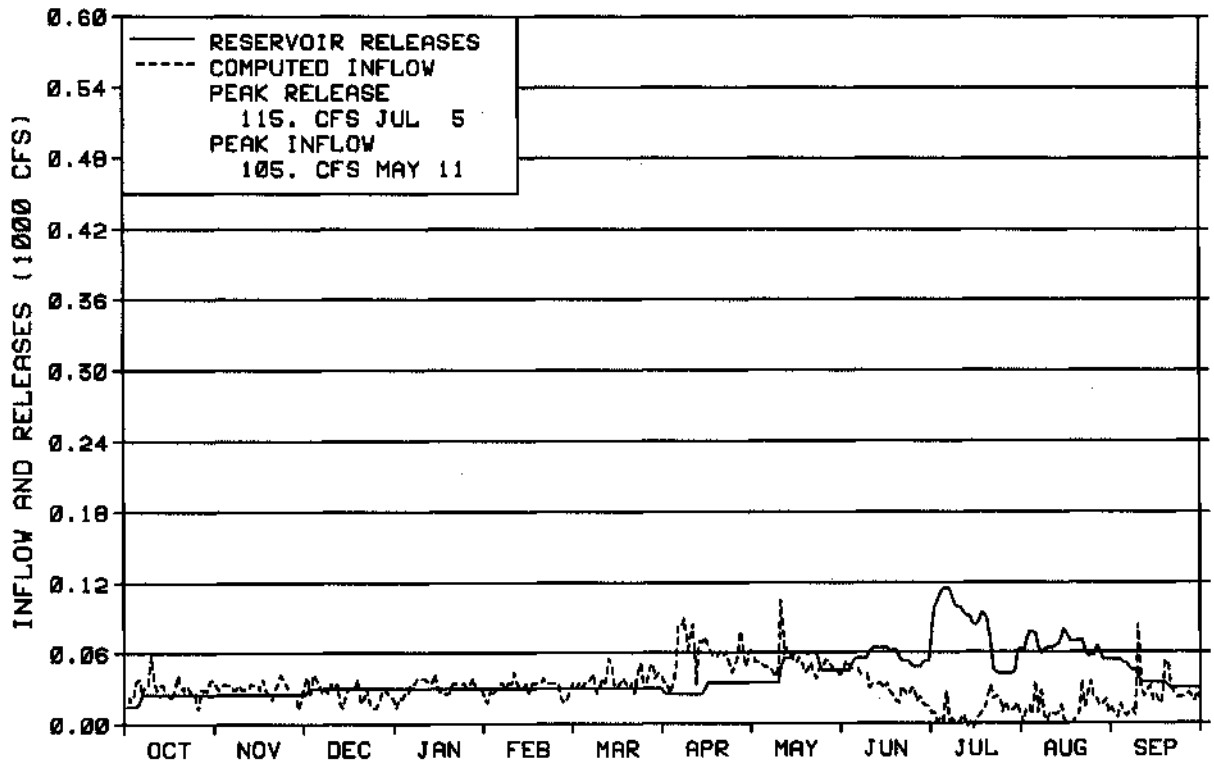
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	22,607	OCT 01-SEP 02	29,256	OCT 01-SEP 02
DAILY PEAK (CFS)	105	MAY 11, 2002	115	JUL 05, 2002
DAILY MINIMUM (CFS)	0	JUL 15, 2002	15	OCT 15,2001
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	1,886	89	1,440	86	53,328	119
NOVEMBER	1,788	118	1,488	109	53,628	120
DECEMBER	1,623	128	1,840	132	53,411	119
JANUARY	1,910	146	1,843	140	53,478	120
FEBRUARY	1,757	130	1,666	138	53,569	119
MARCH	2,296	96	1,845	104	54,020	119
APRIL	3,487	81	1,798	61	55,709	119
MAY	3,156	48	2,907	52	55,958	117
JUNE	1,896	27	3,287	53	54,567	112
JULY	596	16	4,918	93	50,245	107
AUGUST	802	28	4,010	98	47,037	105
SEPTEMBER	1,411	60	2,215	82	46,233	104
ANNUAL	22,607	63	29,256	84		
APRIL-JULY	9,135	42				

DKG6

PACTOLA RESERVOIR





WATER YEAR 2002

ANGOSTURA RESERVOIR

BACKGROUND

Angostura Reservoir (P-S MBP), located on the Cheyenne River above Hot Springs, South Dakota, was built to service about 12,200 acres in the Angostura Unit (P-S MBP) and for power generation. It has a total capacity of 130,700 acre-feet with an additional surcharge capacity of 56,400 acre-feet. Its principle use is for irrigation of the Angostura Unit, which diverts its water from a high-level outlet at the dam. In the early years, water surplus to irrigation needs was released to the river through a small power plant with a nameplate capacity of 1,200 kilowatts. Because of the low runoff, and because actual irrigation diversions were higher than previously anticipated, it was concluded that continued operation of the power plant was economically infeasible. Except for a few operations of less than 24 hours each, the plant was last operated in February 1959. In 1966, the plant was officially closed and the equipment was declared surplus in March 1968. Disposal of this equipment was completed in 1971. Releases for irrigation are made through the canal outlet works into the Angostura Main Canal having a design capacity of 290 cfs. Releases to the Cheyenne River are only made when the reservoir is assured of filling.

WATER YEAR 2002 OPERATIONS SUMMARY

Angostura began WY2002 at an elevation of 3180.72 ft, and a storage of 103,223 acre-feet. Total inflows for the water year 2002 totaled 16,583 acre-feet, 20 % of average and was the second lowest in 50 years of record. Peak inflows occurred in March totaling 4,307 acre-feet for the month.

Water users were allocated full allotments of project water. Releases for irrigation began May 20 and reached a peak of 290 cfs on July 7. The irrigation release was terminated on September 13, with 77,497 acre-feet remaining in storage. Total irrigation releases were 41,463 acre-feet. Storage on September 30, 2002 was 78,232 acre-feet at elevation 3173.70, which is 52,468 acre-feet and 13.50 ft below the top of conservation pool.

Annual Emergency Management/Security orientation was conducted on March 19, 2002.

The Angostura Dam Spillway and Outlet Works Rehabilitation Contract (specifications no. 60-00445) was started in April. The contract was awarded in February of 2002 to Construction Engineers, LTD of Grand Forks, ND. Principal work items in the contract are as follows: 1) painting of the spillway radial gates, 2) replacement of the spillway radial gate hoist cables and associated hardware, 3) replacement of the existing cathodic protection systems, 4) repair of deteriorated concrete in the spillway, 5) replacement of the fixed-wheel gate hoists and hoist frames for the canal and river outlets, 6) rehabilitation of the fixed-wheel gates for the canal and river outlets, 7) rehabilitation of the superstructure on the spillway, and 8) rehabilitation of the canal outlet pipe. Completion of the contract is anticipated in November of 2002.

MONTHLY STATISTICS FOR WATER YEAR 2002

October inflow, at Angostura Reservoir, was below average. October EOM elevation was above average. Angostura ended the month 6.4 feet from full.

November inflow, at Angostura Reservoir, was below average. November EOM elevation was above average. Angostura ended the month 6.1 feet from full.

December inflow at Angostura Reservoir was slightly above average. December EOM elevation was above average. Angostura ended the month 5.7 feet from full.

January inflow at Angostura Reservoir was below average. January EOM elevation was above average. Angostura ended the month 5.3 feet from full.

February inflow at Angostura Reservoir was below average. February EOM elevation was above average. Angostura ended the month 4.8 feet from full.

March inflow at Angostura Reservoir was 7th lowest in 50 years of record. March EOM elevation was above average. Angostura ended the month 3.8 feet from full.

April inflow at Angostura Reservoir was below average. April EOM elevation was above average. Angostura ended the month 2.9 feet from full. Contractor began work on Angostura Gate Rehab.

May inflow at Angostura Reservoir was the 6th lowest in 50 years. May EOM elevation was below average. Angostura ended the month 3.2 feet from full. Began filling the main canal on May 21st.

June inflow at Angostura Reservoir was the 2nd lowest in 50 years of record. June EOM elevation was below average. Angostura ended the month 5.5 feet from full.

July inflow at Angostura Reservoir was the 6th lowest in 50 years of record. July EOM elevation was below average. Angostura ended the month 10.2 feet from full.

August inflow at Angostura Reservoir was below average. August EOM elevation was much below average. Angostura ended the month 13.3 feet from full.

September inflow at Angostura Reservoir was above average. September EOM elevation was below average. Distribution canal shut off on September 13th. Angostura ended the month 13.5 feet from full. (WY2002 inflows at Angostura were 2nd lowest in 50 years of record.)

Additional statistical information on Angostura reservoir and it's operations during 2001 can be found on Table DKT8 and Figure DKG7.

TABLE DKT8
HYDROLOGIC DATA FOR 2002
ANGOSTURA RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	3,163.00	48,325	48,325
TOP OF ACTIVE CONSERVATION	3,187.20	130,768	82,443
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL			

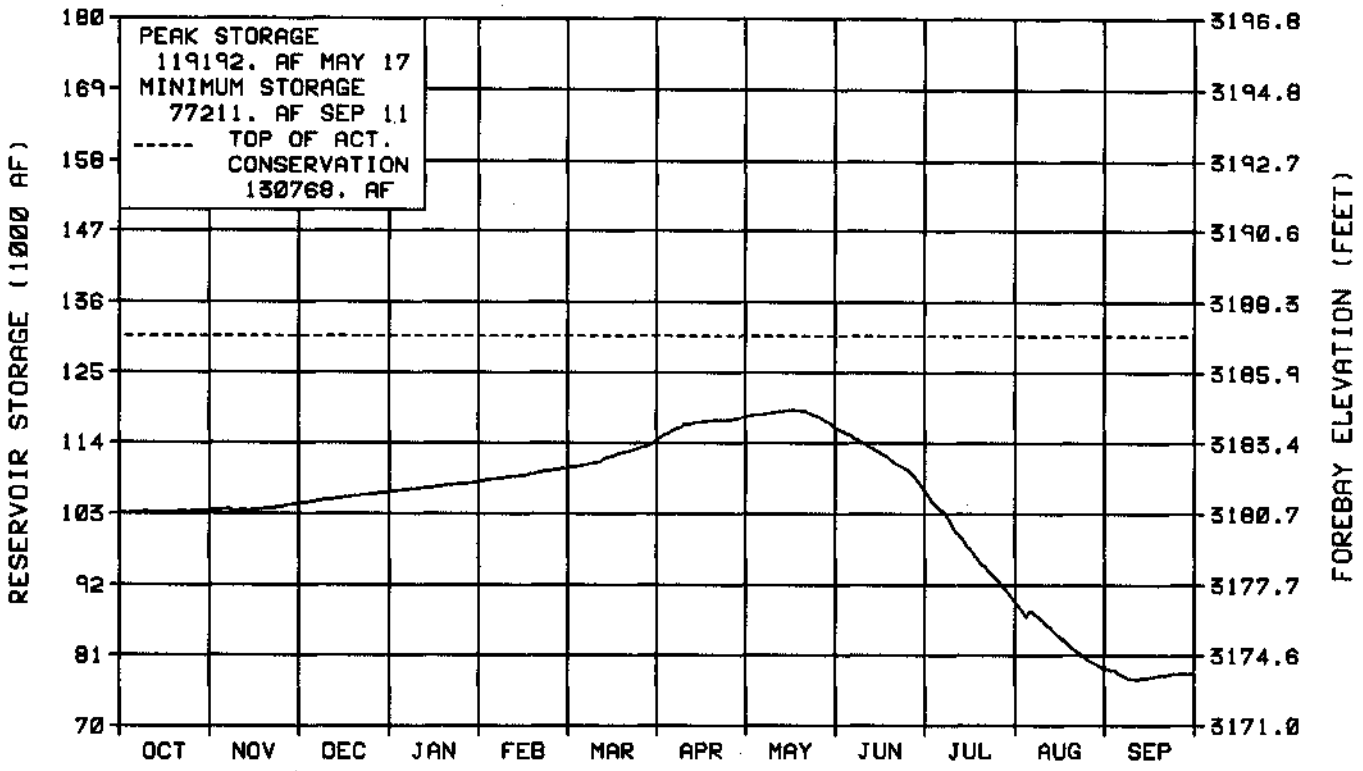
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	3,180.72	103,223	OCT 01, 2001
END OF YEAR	3,173.70	78,232	SEP 30, 2002
ANNUAL LOW	3,173.38	77,211	SEP 11, 2002
ANNUAL HIGH	3,184.60	119,192	MAY 17, 2002
HISTORIC HIGH	3,189.37	**152,228	MAY 20, 1978

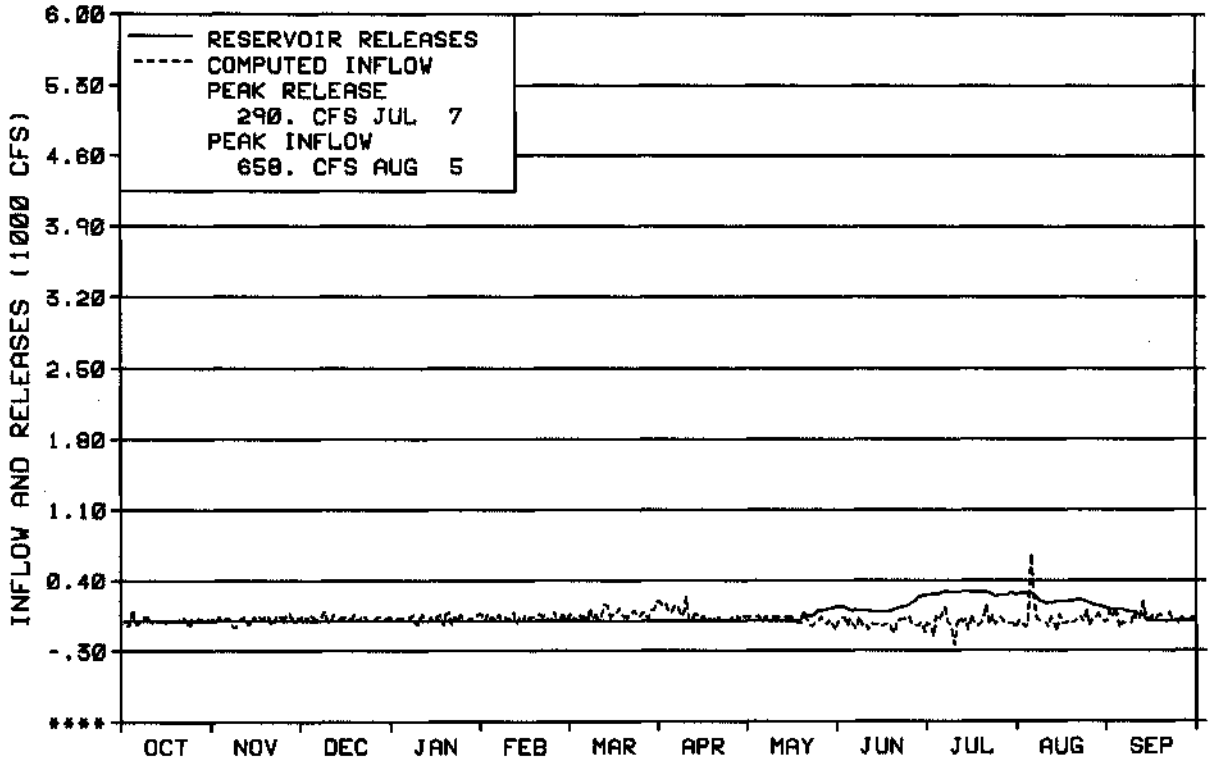
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	16,583	OCT 01-SEP 02	41,573	OCT 01-SEP 02
DAILY PEAK (CFS)	658	AUG 05, 2002	290	JUL 07, 2002
DAILY MINIMUM (CFS)	0	*	0	*
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	434	25	80	7	103,577	100
NOVEMBER	1,012	44	25	1	104,564	100
DECEMBER	1,874	106	0	0	106,437	101
JANUARY	1,651	80	0	0	108,088	101
FEBRUARY	1,872	41	0	0	109,960	100
MARCH	4,307	37	0	0	114,267	97
APRIL	3,767	46	0	0	118,034	97
MAY	733	4	2,224	16	116,543	92
JUNE	-1,626	NA	7,837	38	107,080	85
JULY	-806	NA	16,843	102	89,430	76
AUGUST	1,652	48	12,240	91	78,843	73
SEPTEMBER	1,713	151	2,324	40	78,232	76
ANNUAL	16,583	20	41,573	50		
APRIL-JULY	2,068	4				

* Frequently observed during fall and winter months
** Due to new area-capacity table, the capacity that corresponds to the new historic high elevation is less than a previous high capacity amount (169,020 AF @ Elevation 3189.0 on June 18, 1962)

ANGOSTURA RESERVOIR





WATER YEAR 2002

KEYHOLE RESERVOIR

BACKGROUND

Keyhole Reservoir (P-S MBP) located on the Belle Fourche River below Moorcroft, Wyoming, has a conservation capacity of 193,753 acre-feet (185,801 acre-feet active) and 140,462 acre-feet of exclusive flood control space. It was constructed to furnish a supplemental irrigation supply to 57,000 acres in the Belle Fourche Project and for flood control. Keyhole Reservoir is subject to the Belle Fourche River Compact, and the inflows and storage in the reservoir are allocated 10 percent to Wyoming users and 90 percent to South Dakota users, subject to prior rights. On January 3, 1963, the Belle Fourche Irrigation District executed a long-term contract for the use of 7.7 percent of active storage space in the reservoir. This space will be used to store water belonging to the irrigation district under its prior water right along with the District's pro rata share of storable inflows to Keyhole Reservoir. On January 1, 1985, the Crook County Irrigation District's contract for 18,080 acre-feet of space in Keyhole Reservoir became effective. The allocated space is used by each organization to store its pro rata share of inflows to Keyhole Reservoir. The flood control space at Keyhole Reservoir is all located above an ungated spillway. The spillway capacity is 11,000 cfs at maximum water surface elevation. The downstream safe channel capacity is 3,000 cfs. Formulas for forecasting inflows have not been developed. Research by the Soil Conservation Service during water years 1992 through 1994 show that inflow forecasting to Keyhole Reservoir is not reliable since there is no consistent snowpack and precipitation is highly cyclical. No further efforts to develop forecast models are planned.

WATER YEAR 2002 OPERATIONS SUMMARY

Keyhole reservoir started the water year with an elevation of 4095.12 and storage of 157,334 acre-feet. Inflows for water year 2002 totaled -9414 acre-feet, which was the 2nd lowest in 50 years of record. Average inflows for a water year are 17,038 acre-feet. Keyhole reached its WY2002 peak elevation of 4095.18 on May 5, which was 4.1 feet below top of conservation.

Keyhole ended the water year at an elevation of 4089.39 ft, with storage of 116,993 acre-feet, 9.9 feet and 76,807 acre-feet below top of conservation.

Annual Emergency Management/Security orientation was conducted March 20, 2002.

Irrigation releases began in June and continued into September with Crook County Irrigation District taking 2,801 acre-feet and the Belle Fourche Irrigation District taking 27,625 acre-feet.

MONTHLY STATISTICS FOR WATER YEAR 2002

October inflow at Keyhole Reservoir was much below average. October EOM elev was 6th highest in 50 years of record. Keyhole finished the month 4.4 feet from full.

November inflow at Keyhole Reservoir was below average. November EOM elev was 6th highest in 50 years of record. Keyhole finished the month 4.5 feet from full.

December inflow at Keyhole Reservoir was 3rd lowest in 50 years. December EOM elev was 6th highest in 50 years of record. Keyhole finished the month 4.5 feet from full.

January inflow at Keyhole Reservoir was 2nd lowest in 50 years. January EOM elev was 7th highest, in 50 years of record. Keyhole finished the month 4.6 feet from full.

February inflow at Keyhole Reservoir was below average. February EOM elev was much above average. Keyhole finished the month 4.5 feet from full.

March inflow at Keyhole Reservoir was much below average. March EOM elev was much above average. Keyhole finished the month 4.4 feet from full.

April inflow at Keyhole Reservoir was below average. April EOM elev was much above average. Keyhole finished the month 4.2 feet from full.

May inflow at Keyhole Reservoir was 9th lowest in 50 years. May EOM elev was much above average. Keyhole finished the month 4.3 feet from full.

June inflow at Keyhole Reservoir was much below average. June EOM elev was much above average. Irrigation release of 190 cfs. Keyhole finished the month 5.6 feet from full.

July inflow at Keyhole Reservoir was lowest in 50 years of record. July EOM elev was much above average. Irrigation release at 131 cfs. Keyhole finished the month 8.0 feet from full.

August inflow at Keyhole Reservoir was above average. August EOM elev was above average. Irrigation release of 90 cfs. Keyhole finished the month 9.1 feet from full.

September inflow at Keyhole Reservoir was below average. September EOM elev was above average. Irrigation release stopped September 16th. Keyhole finished the month 9.9 feet from full. (WY2002 inflows were 2nd lowest in 50 years of record.)

Additional statistical information on Keyhole Reservoir and it's operations during 2001 can be found on Table DKT9 and Figure DKG8.

TABLE DKT9
HYDROLOGIC DATA FOR 2002
KEYHOLE RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4,051.00	7,952	7,952
TOP OF ACTIVE CONSERVATION	4,099.30	193,753	185,801
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL	4,111.50	334,215	140,462

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4,095.12	157,334	OCT 01, 2001
END OF YEAR	4,089.39	116,993	SEP 30, 2002
ANNUAL LOW	4,089.39	116,993	SEP 30, 2002
ANNUAL HIGH	4,095.18	157,814	MAY 05, 2002
HISTORIC HIGH	4,100.38	210,222	MAY 21, 1978

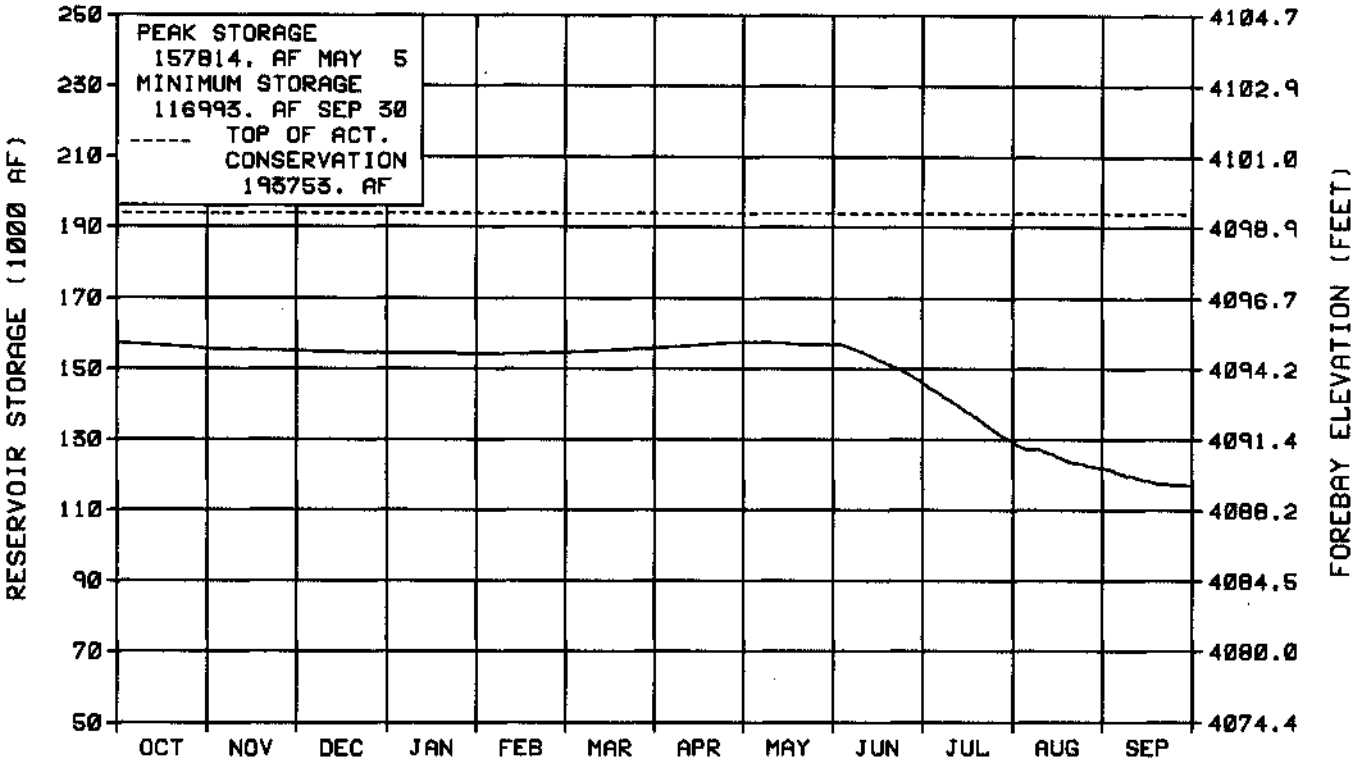
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	-9,414	OCT 01-SEP 02	30,927	OCT 01SEP 02
DAILY PEAK (CFS)	298	AUG 07, 2002	226	JUL 11, 2002
DAILY MINIMUM (CFS)	0	*	0	*
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

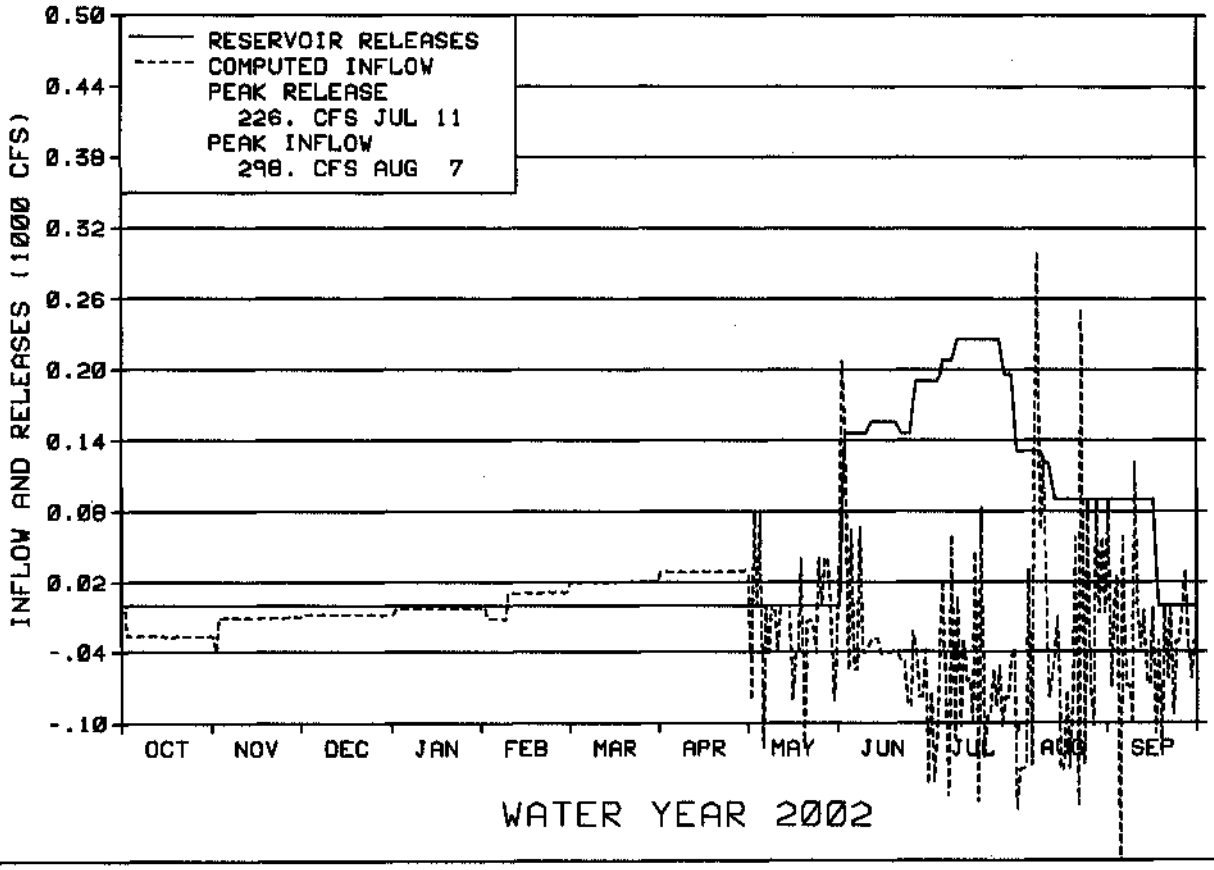
MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	-1,597	NA	0	NA	155,737	178
NOVEMBER	-692	NA	0	NA	155,045	178
DECEMBER	-478	NA	0	NA	154,567	177
JANUARY	-170	NA	0	NA	154,397	176
FEBRUARY	289	10	0	NA	154,686	171
MARCH	1,210	17	0	NA	155,896	161
APRIL	1,701	64	0	NA	157,597	163
MAY	-823	NA	0	NA	156,774	158
JUNE	-1,298	NA	8,878	408	146,598	145
JULY	-4,383	NA	12,873	322	129,342	134
AUGUST	-967	NA	6,407	171	121,968	134
SEPTEMBER	-2,205	NA	2,770	351	116,993	132
ANNUAL	-9,414	NA	30,927	208		
APRIL-JULY	-4,803	NA				

* Frequently observed during fall and winter months

DKG8

KEYHOLE RESERVOIR





WATER YEAR 2002

SHADEHILL RESERVOIR

BACKGROUND

Shadehill Reservoir, a feature of the Shadehill Unit (P-S MBP), is located on the Grand River near Shadehill, South Dakota, and was constructed for irrigation of 9,700 acres, and for flood control, recreation, and fish and wildlife purposes. The reservoir has a dead and conservation capacity totaling 120,172 acre-feet with an additional exclusive flood control capacity of 230,004 acre-feet and a surcharge capacity of 119,560 acre-feet. Flood control space is all located above the crest of an un-gated glory-hole spillway. Because of the questionable quality of water, it was decided to postpone construction of distribution works for irrigation.

After further study, it was concluded that water from Shadehill Reservoir can be used for sustained irrigation if certain limitations of soils, leaching water, soil amendments, and drainage are met. A definite plan report covering 6,700 acres which meets these limitations has been completed, approved by the Commissioner, and released for distribution. On December 17, 1963, landowners within the area voted 24 to 21 against formation of an irrigation district. Further action on development of the area was deferred until the attitude of the landowners was more favorable. Pending more extensive irrigation development, an additional 51,500 acre-feet of space between elevations 2260 and 2272 was allocated to flood control. Allocations and evacuation of this space was made possible by modification of the outlet works in 1969 to permit a discharge of 600 cfs to the river. In June of 1975, the West River Conservancy Sub-District was formed combining all but one of the old individual contracts for water supply from the reservoir into one. Acreage contracted for by the District was 5,000 acres; however, only 3,064 acres were developed. On March 18, 1986, the contract between Reclamation and the West River Conservancy Sub-District was assigned to the Shadehill Water User District, an organization, which succeeded the Sub-District under South Dakota law. This contract has expired and presently conservation releases are meeting irrigation demands. Should irrigation releases be required a temporary water service contract will need to be executed with the Shadehill Water User District.

Because certain release criteria reduced the effectiveness of flood control operations in the zone between elevation 2260 and 2272, and because the Corps of Engineers has constructed Bowman Haley Reservoir upstream from Shadehill Reservoir with 53,800 acre-feet of flood control space, the Corps requested that the interim flood control agreement be terminated and that responsibility for the operations of Shadehill Reservoir when the pool is between elevations 2260 and 2272 revert to Reclamation. By a revised field working agreement dated May 15, 1972, it was agreed that the space between elevation 2260 and 2272 (51,500 acre-feet) be reallocated to conservation use. However, space below elevation 2272 will continue to be evacuated before the start of the spring runoff, but to a lesser extent than in the past.

WATER YEAR 2002 OPERATIONS SUMMARY

Shadehill reservoir began the water year at elevation 2268.89 ft with storage of 105,214 acre-feet. The peak reservoir water elevation occurred on October 1, with an elevation of 2268.89 ft.

Inflows for water year 2002 totaled 1,595 acre-feet, 2% of average and the third lowest in the 50 year period of record. Shadehill ended the water year at elevation 2263.19 ft with storage of 81,212 acre-feet.

All project irrigation demands were met from river maintenance releases. There were no storage releases for irrigation needed during water year 2002.

Annual Emergency Management/Security orientation was conducted on March 26, 2002.

MONTHLY STATISTICS FOR WATER YEAR 2002

October inflow, at Shadehill Reservoir, was below average and October EOM elev was above average. Controlled release of 40 cfs. Shadehill finished the month 4.1 feet below top of conservation.

November inflow, at Shadehill Reservoir, was below average and November EOM elev was above average. Controlled release of 39 cfs. Shadehill finished the month 4.6 feet below top of conservation.

December inflow at Shadehill was below average and December EOM elev was above average. Controlled release remains at 39 cfs. Shadehill finished the month 5.0 feet below top of conservation.

January inflow at Shadehill was below average and January EOM elev was slightly above average. Controlled release remains at 38 cfs. Shadehill finished the month 5.4 feet below top of conservation.

February inflow at Shadehill was below average and February EOM elev was slightly above average. Controlled release remains at 38 cfs. Shadehill finished the month 5.7 feet below top of conservation.

March inflow at Shadehill was much below average and March EOM elev was below average. Controlled release remains at 38 cfs. Shadehill finished the month 5.7 feet below top of conservation.

April inflow and April EOM elev at Shadehill were much below average. Controlled release remains at 31 cfs. Shadehill finished the month 5.6 feet below top of conservation.

May inflow was 9th lowest and May EOM elev was 8th lowest in 50 years at Shadehill. Controlled release remains at 31 cfs. Shadehill finished the month 6.0 feet below top of conservation.

June inflow at Shadehill was 2nd lowest and June EOM elev was 6 th lowest in 50 years of record. Controlled release remains at 30 cfs. Shadehill finished the month 6.6 feet below top of conservation.

July inflow at Shadehill was 4th lowest and July EOM elev was 6 th lowest in 50 years of record. Controlled release at 23 cfs. Shadehill finished the month 7.4 feet below top of conservation.

August inflow at Shadehill was below average. August EOM elev was 6 th lowest in 50 years of record. Controlled release at 23 cfs. Shadehill finished the month 8.0 feet below top of conservation.

September inflow and September EOM elev at Shadehill elev were 6 th lowest in 50 years of record. Controlled release at 22 cfs. Shadehill finished the month 8.8 feet below top of conservation. (WY2002 inflows were 3 rd lowest in 50 years of record.)

Additional statistical information on Shadehill Reservoir and it's operations during 2001 can be found on Table DKT10 and Figure DKG9.

TABLE DKT10
HYDROLOGIC DATA FOR 2002
SHADEHILL RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2,250.80	43,869	43,869
TOP OF ACTIVE CONSERVATION	2,272.00	120,172	76,303
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL	2,302.00	350,176	230,004

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2,268.89	105,214	OCT 01, 2001
END OF YEAR	2,263.19	81,212	SEP 30, 2002
ANNUAL LOW	2,263.19	81,212	SEP 30, 2002
ANNUAL HIGH	2,268.89	105,214	OCT 01, 2001
HISTORIC HIGH	2,297.90	318,438	APR 10, 1952

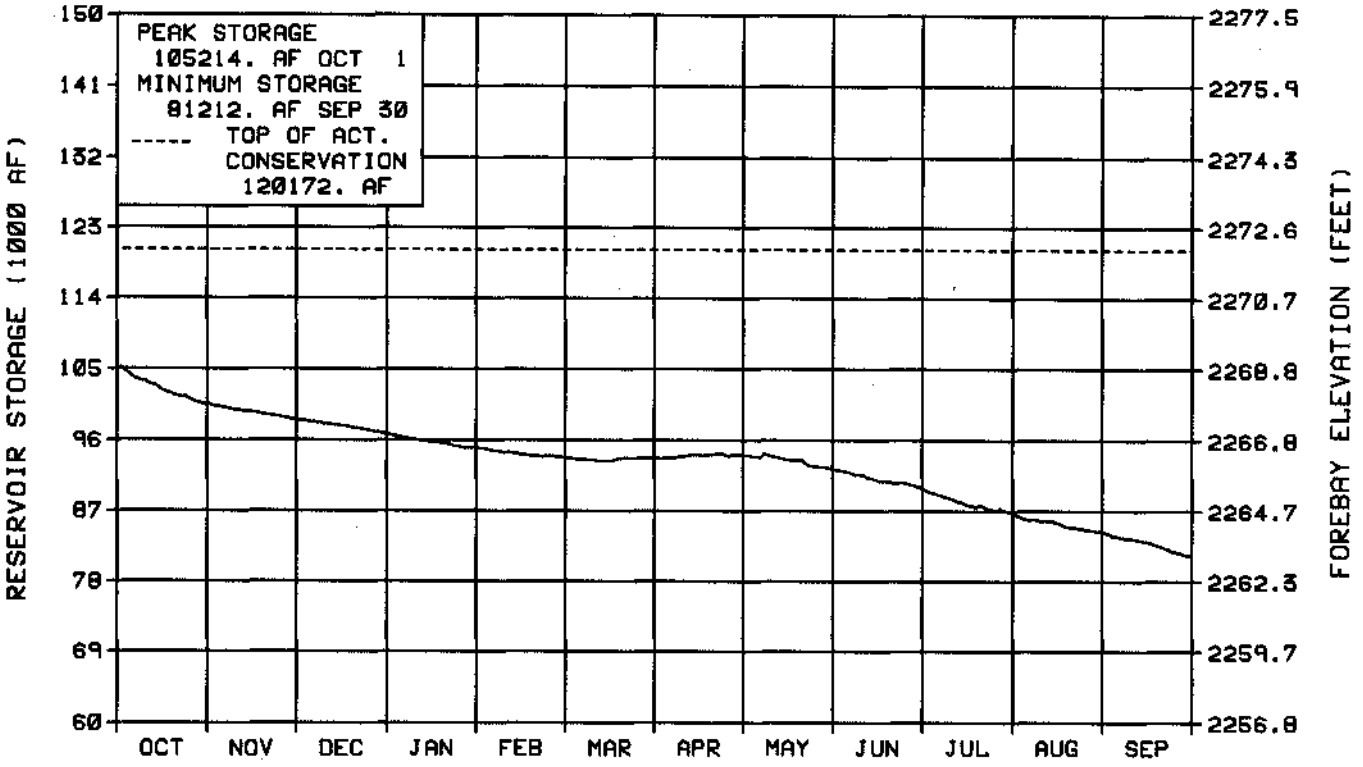
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DA1E
ANNUAL TOTAL (AF)	1,596	OCT 01-SEP 02	25,828	OCT 01-SEP 02
DAILY PEAK (CFS)	267	MAY 08, 2002	127	OCT 01, 2001
DAILY MINIMUM (CFS)	0	*	21	AUG 01, 2002
PEAK SPILL (CFS)			0	
TOTAL SPILL (AF)			0	

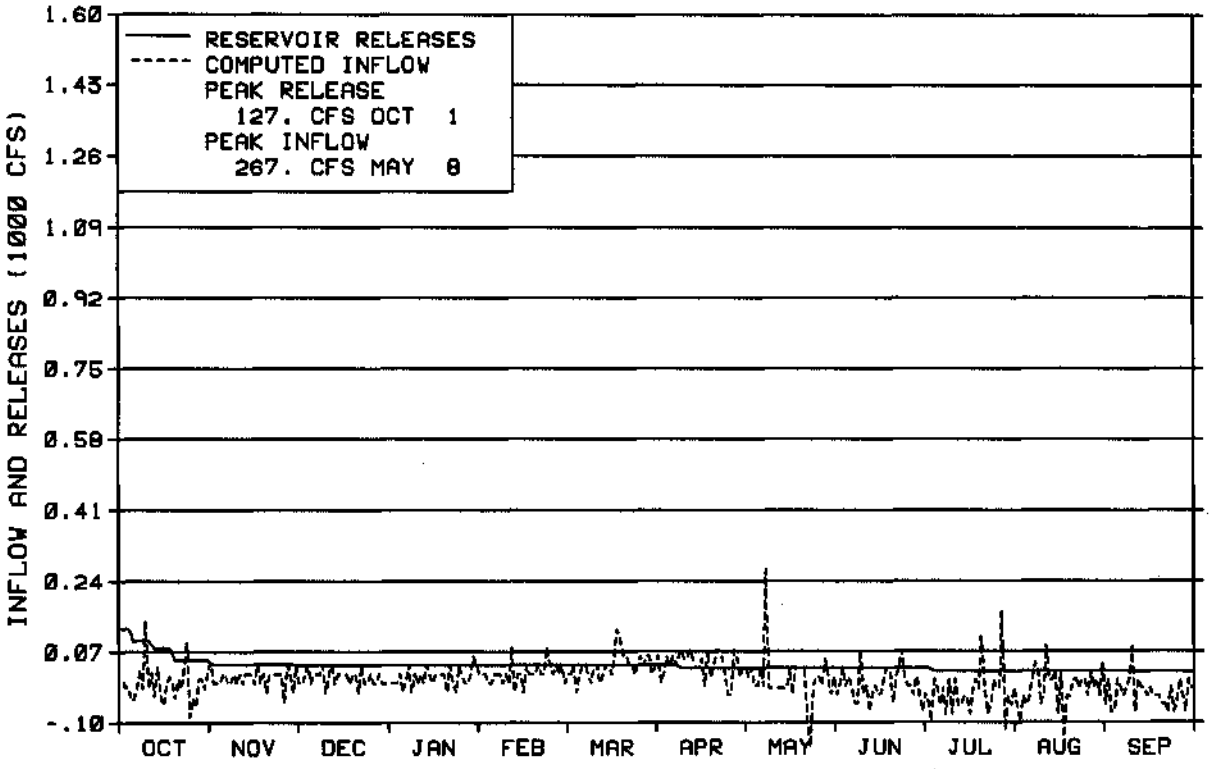
MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	-233	NA	4,664	138	100,547	88
NOVEMBER	384	49	2,335	86	98,596	88
DECEMBER	487	58	2,367	92	96,716	87
JANUARY	576	56	2,346	95	94,946	87
FEBRUARY	977	30	2,087	95	93,836	85
MARCH	2,225	11	2,311	26	93,750	76
APRIL	2,272	12	1,932	12	94,090	74
MAY	196	2	1,890	19	92,396	72
JUNE	-628	NA	1,790	20	89,978	70
JULY	-1,776	NA	1,443	26	86,759	68
AUGUST	-1,137	NA	1,363	30	84,259	69
SEPTEMBER	-1,748	NA	1,299	34	81,212	69
ANNUAL	1,596	2	25,828	37		
APRIL-JULY	64	0				

* Frequently observed during fall and winter months

DKG9

SHADEHILL RESERVOIR





WATER YEAR 2002

BELLE FOURCHE RESERVOIR

BACKGROUND

Belle Fourche Reservoir, located near Belle Fourche, South Dakota, is formed by Belle Fourche Dam on Owl Creek, a tributary of the Belle Fourche River. It has a total capacity of 192,077 acre-feet (185,277 acre-feet active). The reservoir is filled by diverting water from the Belle Fourche River through the Inlet Canal, which has a capacity of 1,300 cfs. The reservoir is used for irrigation of 57,000 acres in the Belle Fourche Project, which also receives a supplemental supply from Keyhole Reservoir. From November 1965 through May 1977, the active capacity of the reservoir was temporarily limited to 160,300 acre-feet at elevation 2981.8 feet until the damaged spillway was replaced.

When the Belle Fourche Reservoir storage right was satisfied by the reservoir filling, the South Dakota Department of Environment and Natural Resources provided guidelines for complying with water rights on the Belle Fourche River. The District was required to continue to bypass 5 cfs for domestic use prior to diverting the Johnson Lateral water right for up to 40 cfs. If flows into the diversion dam were greater than 45 cfs, the District was required to bypass up to 60 cfs for downstream irrigation rights. Any flows in excess of these amounts could be diverted into the reservoir and stored. If all of these rights were not needed, the District could divert flows into the reservoir.

WATER YEAR 2002 OPERATIONS SUMMARY

Belle Fourche Reservoir began the Water year with an elevation of 2961.10 ft and storage of 97,200 acre-feet.

Significant Canal Operations:

The Inlet Canal remained open all winter. North and South Canal were turned on May 6th. North and South Canal were shut off September 24th.

Inflows peaked in April at 13,114 acre-feet. Inflows for the water year 2002 totaled 99,709 acre-feet, 85% of average.

The reservoir ended the water year at elevation 2952.28. ft with storage of 56,009 acre-feet. The reservoir finished the year 22.7 feet from full.

Releases from Keyhole Reservoir to the Belle Fourche Irrigation District totaled 27,625 AF with 10,000 AF being purchased from US storage at Keyhole.

Annual Emergency Management/Security orientation was conducted April 25.

The required settlement survey was completed just before start of the irrigation season and inclinometers were read quarterly.

MONTHLY STATISTICS FOR WATER YEAR 2002

October EOM elevation, at Belle Fourche, was above average. October inflow was slightly below average. North Canal shut off on Oct 6. Belle Fourche ended the month 12.8 feet from full.

November EOM elevation, at Belle Fourche, was above average. November inflow was slightly above average. Belle Fourche ended the month 11.0 feet from full.

December EOM elevation at Belle Fourche was above average. December inflow was slightly above average. Belle Fourche ended the month 9.3 feet from full.

January EOM elevation at Belle Fourche was above average. January inflow was above average. Belle Fourche ended the month 7.7 feet from full.

February EOM elevation at Belle Fourche was above average. February inflow was below average. Belle Fourche ended the month 6.3 feet from full.

March EOM elevation at Belle Fourche was above average. March inflow was below average. Belle Fourche ended the month 4.7 feet from full.

April EOM elevation at Belle Fourche was above average. April inflow was below average. Belle Fourche ended the month 2.9 feet from full.

May inflow at Belle Fourche was below average. May EOM elev was above average. Belle Fourche ended the month 3.0 feet from full. Began filling irrigation canals on 6 May.

June inflow at Belle Fourche was 2 nd lowest in 50 years of record. June EOM elev was below average. Belle Fourche ended the month 8.5 feet from full.

July inflow at Belle Fourche was below average. July EOM elev was below average. BFID purchased 5000 AF of water from US storage at Keyhole Reservoir. Belle Fourche ended the month 15.2 feet from full.

August inflow at Belle Fourche was above average. August EOM elev was below average. BFID purchased another 5000 AF of water from US storage at Keyhole. Belle Fourche ended the month 21.3 feet from full.

September inflow at Belle Fourche was 7 th highest in 50 years of record; however, this includes Belle Fourche irrigation releases from Keyhole. September EOM elev was slightly above average. North and South canals shut off on September 24 th. Belle Fourche ended the month 22.7 feet from full.

Additional statistical information on Belle Fourche reservoir and it's operations during 2001 can be found on Table DKT11 and Figure DKG10

TABLE DKT11
HYDROLOGIC DATA FOR 2002
BELLE FOURCHE RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2,927.00	6,800	6,800
TOP OF ACTIVE CONSERVATION	2,975.00	192,077	185,277
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL			

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2,961.10	97,200	OCT 01, 2001
END OF YEAR	2,952.28	56,009	SEP 30, 2002
ANNUAL LOW	2,951.03	51,419	SEP 20, 2002
ANNUAL HIGH	2,972.75	174,372	MAY 14, 2002
HISTORIC HIGH	2,975.80	198,455	MAY 12, 1978

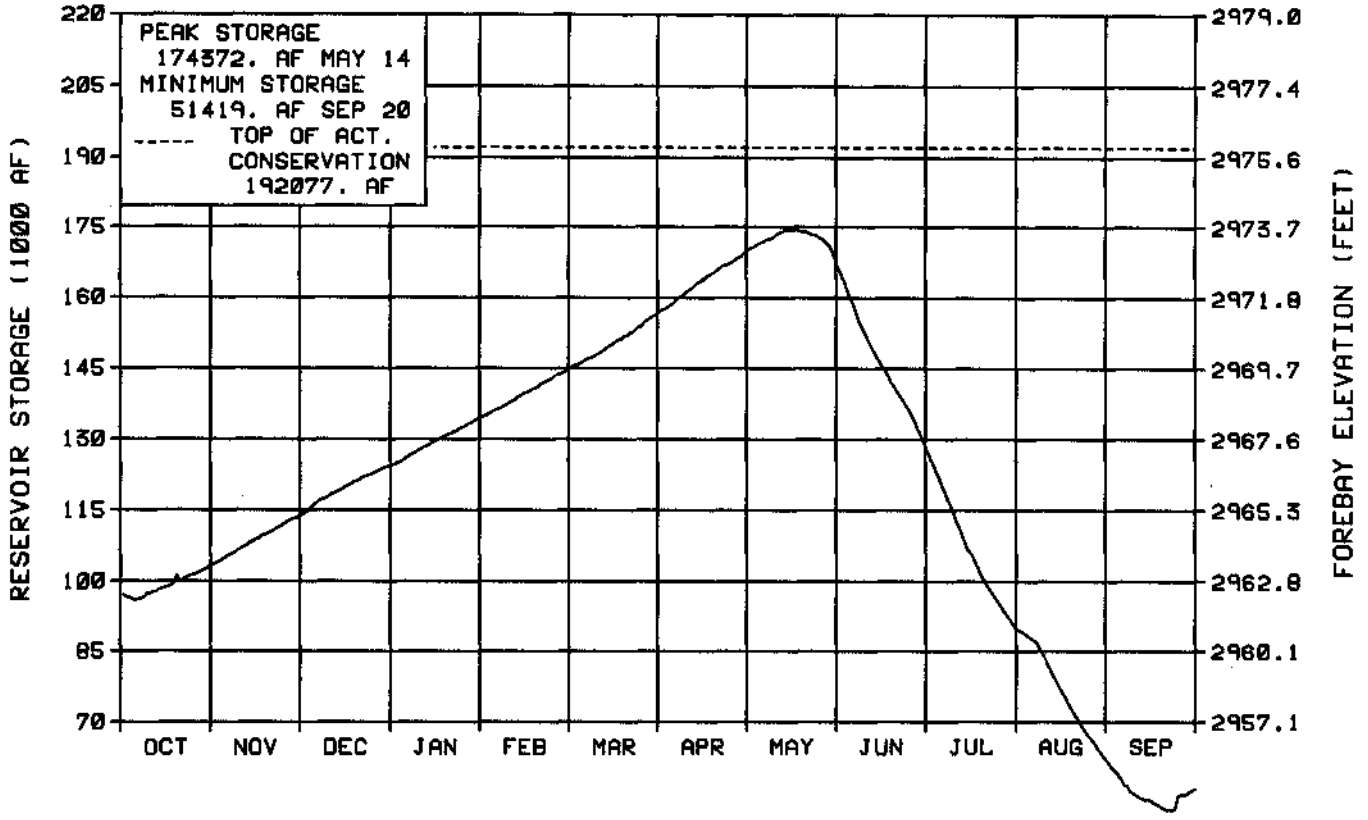
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	99,709	OCT 01-SEP 02	140,900	OCT-01-SEP-02
DAILY PEAK (CFS)	1,365	SEP 24, 2002	805	JUL 14, 2002
DAILY MINIMUM (CFS)	0	*	0	*
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

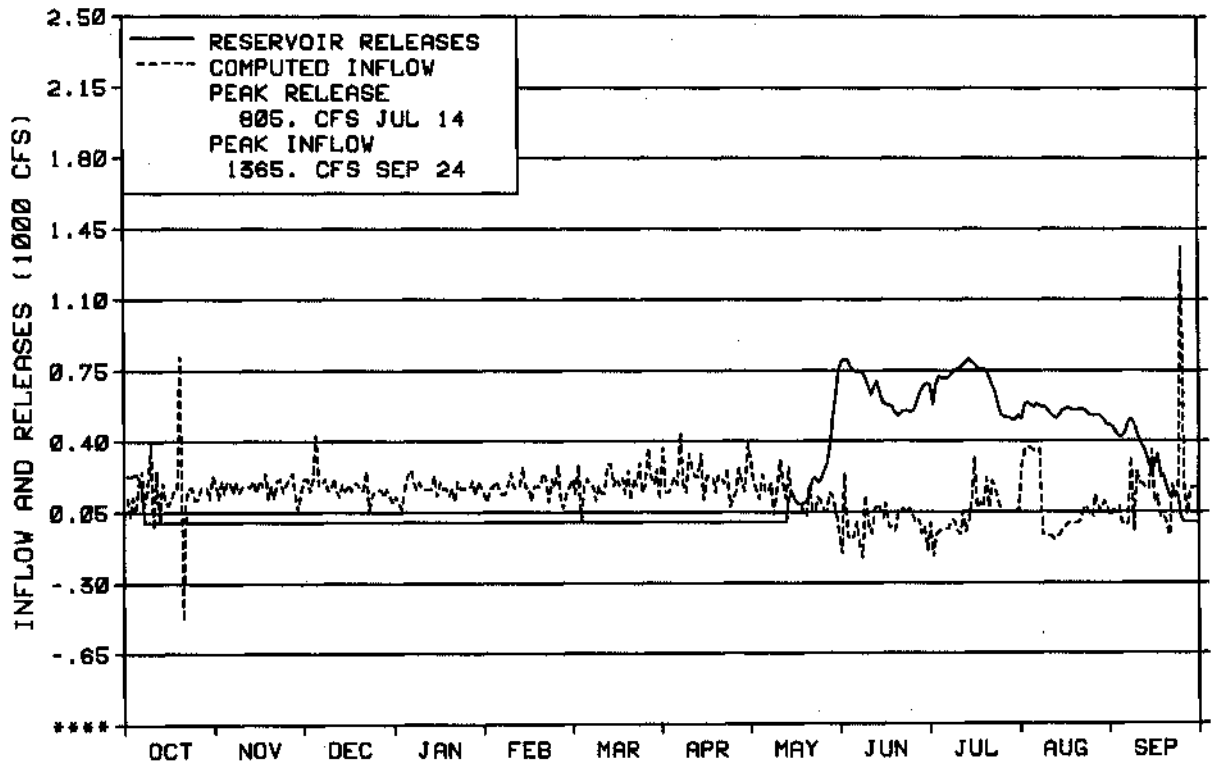
MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	9,006	86	2588	411	103,618	145
NOVEMBER	10,379	105	0	NA	113,997	141
DECEMBER	10,634	114	0	NA	124,631	138
JANUARY	10,156	105	0	NA	134,787	135
FEBRUARY	9,679	93	0	NA	144,465	132
MARCH	11,897	72	0	NA	156,362	124
APRIL	13,114	94	0	NA	169,476	122
MAY	7,867	56	9,007	113	168,335	116
JUNE	-101	NA	38,825	230	129,409	92
JULY	2,562	67	41,767	112	90,204	84
AUGUST	5,173	272	33,643	94	61,735	84
SEPTEMBER	9,345	193	15,071	87	56,009	92
ANNUAL	99,709	85	140,900	121		
APRIL-JULY	23,442	53				

* Frequently observed during fall and winter months

DKG10

BELLE FOURCHE RESERVOIR





WATER YEAR 2002

CORPS OF ENGINEERS MAIN STEM RESERVOIRS

The Missouri River main stem reservoir system consists of six reservoirs located on the Missouri River in Montana, North Dakota, South Dakota, and Nebraska. This reservoir system serves flood control, irrigation, navigation, power, municipal and industrial water supply, water quality control, fish and wildlife, and recreation. Based on information from the Corps' 2003 AOP, the capacity and storage allocations of the main stem system were updated to current values and are shown in downstream order as follows:

Reservoir Storage Allocation (1,000 Acre-Feet)

Darn	Permanent	Carryover Multiple Use	Annual Flood Control and Multiple Use	Exclusive Flood Control	Total Storage
Fort Peck	4,211	10,785	2,717	975	18,688
Garrison	4,980	13,130	4,222	1,489	23,821
Oahe	5,373	13,461	3,201	1,102	23,137
Big Bend	1,682	0	117	60	1,859
Fort Randall	1,517	1,607	1,309	985	5,418
Gavins Point	321	0	90	59	470
Totals	18,084	38,983	11,656	4,670	73,393

Each main stem facility serves a powerplant. The number of generating units and total nameplate capabilities are shown below:

Povverplant	Units	Capacity (Kilowatts)
Fort Peck	5	185,250
Garrison	5	517,750
Oahe	7	786,030
Big Bend	8	494,320
Fort Randall	8	320,000
Gavins Point	3	132,300
Totals	36	2,435,650

Main stem system releases are regulated to support the multiple use purposes of the reservoirs. The navigation season on the Missouri River below the dams normally is from late March to late November. Generally, releases from the system for navigation are higher during late summer and fall lowering the system storage. During that time, much of the system's hydropower is generated from the lower most projects. During closure of the navigation season, higher releases are made and more power is generated from the upstream Fort Peck and Garrison Reservoirs. This offsets the reduced release and generation from the downstream projects during winter closure of the river for navigation. The desired annual target system storage level is 57.1 million acre-feet on the first of March.

The regulation of Missouri River flows by the main stem storage provided benefits to nine water resource-related functions, including flood control, irrigation, navigation, power, municipal and industrial water supply, water quality control, fish and wildlife, and recreation. Table CETI presents the regulation benefit for most of those functions as recorded in 2002-2003, 2001-2002, and the average. Benefits are defined as the tons of produce shipped, dollars of damages prevented, kilowatt hours of electricity produced, and reservoir elevation and river stages maintained. For the shipping information, estimates also were provided this year which included the sand, gravel, and waterway material shipped.

TABLE CET 1
Main Stem Reservoir Water Regulation
Comparison with Past Regulations

Use of Regulated Water	Period of Use or Season	Totals	Totals	Long-Term
Navigation*	Mar. - Dec.	1.0 million tons (2003)	1.0 million tons (2002)	2.1 million tons'
Flood Damages Prevented	Jan. - Dec.	$49.7 million (2003)	$7.3 million (2002)	$18.2 billion2
Energy	Aug. - Jul.	7.8 billion KWH (Aug. 02-July 03)	7 billion KWH (Aug. 01-July 02)	10 billion KWH3

* Excludes sand, gravel, waterway material
2002/2003 - preliminary estimate
Including sand, gravel, waterway material
8.3 million tons (2002)
7.0 million tons (35-year long-term average)

The main stem reservoirs also provide supplemental water for irrigation and municipal uses and improves water quality in the river system.

'Average for 34 years 1968-2002 with the peak shipments in 1977 (2.1 million tons).
[2]Total damages prevented (1938-2003).
[3]Average Annual 1968-2003.

A detailed description of the main stem system operations during 2003 is presented in annual operating reports prepared by and available for distribution from the U.S. Missouri River Basin Water Management Division, U.S. Army Corps of Engineers, Northwestern Division, Omaha, Nebraska.

ENERGY GENERATION

There are 14 Federal powerplants located in the Upper Missouri River Basin that are currently operating. Eight of the powerplants are operated and maintained by Reclamation and have a total capacity of 348,100 kilowatts. The other six have a total capacity of 2,435,650 kilowatts and are operated and maintained by the Corps. The Corps' powerplants are located on the main stem of the Missouri River. Generation from the 14 powerplants is marketed by the Department of Energy.

Total generation in the combined system in WY 2003 was 8,540.496 million kilowatt hours, 559.9 million kilowatt hours more than in WY 2002. A summary of the past 10 years of energy generation within the Upper Missouri River Basin is shown below.

USBR and COE Energy Generation
Million KiloWatt Hours

Year	USBR	COE	TOTAL
2003	757.118	7783.378	8540.496
2002	708.594	7271.994	7980.588
2001	905.528	6521.944	7427.472
2000	1240.802	10363.931	11604.733
1999	2017.536	11073.228	13090.764
1998	1822.698	11435.586	13258.284
1997	2016.989	13942.025	15959.014
1996	1837.954	13788.867	15626.821
1995	1433.794	8883.983	10317.777
1994	1268.360	8171.693	9440.053

A comparison of 2002 and 2003 generation and other data from Missouri Basin Region powerplants is shown on Table CET2. Tables CET3, 4, and 5 show the monthly generation, power releases, and total downstream releases, respectively, for all Federal plants in the Missouri Basin Region. The annual energy generation for each of the last several years for all Reclamation, Corps, and combined plants is shown graphically on Figures CEG1, 3, and 5, respectively, Monthly generation for each month during the past several years is shown graphically on Figures CEG2, 4, and 6.

For a more detailed account of powerplants operation at Reclamation facilities during the year, refer to the 2003 operation summaries. Information on the Corps' powerplants operations can be obtained from the annual operating reports prepared by and available for distribution from the Reservoir Control Center, U.S. Army Corps of Engineers, Omaha, Nebraska.

TABLE CET2

ANNUAL ENERGY PRODUCTION DATA
WATER YEAR 2002

BUREAU PLANTS	INSTALLED CAPACITY (KW)	MILLION KILOWATT-HOURS GENERATED 2002	MILLION KILOWATT-HOURS GENERATED 2003	WATER USED FOR GENERATION IN 2002 1,000 AF	WATER USED FOR GENERATION IN 2002 PERCENT OF TOTAL RELEASE	WATER USED FOR GENERATION IN 2002 KW-HOURS PER AF	RIVER RELEASE 1,000 AF	TOTAL RELEASE 1,000 AF
Canyon Ferry	50,000	229.171	229.171	1,923.683	95.00	119.13	5,512.236	2,024.932
*Pilot Butte	1,600	3.976	3.976	43.710	29.18	90.96	149.781	149.781
Boysen	15,000	26.201	26.201	448.367	99.91	58.44	448.775	448.775
Buffalo Bill Reservoir Units								
Shoshone	3,000	15.004	15.004	107.507	18.74	139.56	See below for	total.
Buffalo Bill	18,000	38.521	38.521	176.642	30.79	218.07	See below for	total.
Heart Mountain	6,000	17.267	17.267	76.803	13.39	224.82	See below for	total.
Spirit Mountain	4,500	12.793	12.793	144.562	25.20	88.49	See below for	total.
Total for Buffalo Bill Reservoir	31,500	83.585	83.585	505.514	88.10	165.35	1,158.769	573.765
Yellowtail	250,000	365.661	365.661	1,155.195	100.00	316.54	3,420.572	1,155.195
Subtotal	**348,100**	**708.594**	**708.594**	**4,076.469**	**93.66**	**173.83**	**10,690.133**	**4,352.448**
CORPS PLANTS								
Fort Peck	185,250	691.452	691.452	4,365.00	100.00	158.41	4,365.000	4,365.000
Garrison	517,750	1,464.465	1,464.465	10,651.00	100.00	137.50	10,651.000	10,651.000
Oahe	786,030	2,083.279	2,083.279	14,752.00	100.00	141.22	14,752.000	14,752.000
Big Bend	494,320	819.321	819.321	13,752.00	100.00	59.58	13,752.000	13,752.000
Fort Randall	320,000	1,503.217	1,503.217	15,090.00	100.00	99.62	15,090.000	15,090.000
Gavins Point	132,300	710.260	710.260	16,005.00	100.00	44.38	16,005.000	16,005.000
Subtotal	**2,435,650**	**7,271.994**	**7,271.994**	**74,615.00**	**100.00**	**97.46**	**74,615.000**	**74,615.000**
TOTAL MISSOURI BASIN	**2,783,750**	**7,980.588**	**7,980.588**	**78,691.47**	**99.65**	**101.42**	**85,305.133**	**78,967.448**

*River Release and Total Release for Pilot Butte Reservoir is Computed Inflow into Pilot Butte Reservoir due to location of powerplant at inlet supply canal

TABLE CET3

MONTHLY ENERGY GENERATION (MILLION KILOWATT-HOURS)

WATER YEAR 2002

	BUREAU OF RECLAMATION PLANTS								
				BUFFALO BILL PLANTS					
MONTH	CANYON FERRY	PILOT BUTTE	BOYSEN	HEART MOUNTAIN	SPIRIT MOUNTAIN	BUFFALO BILL	SHOSHONE	YELLOWTAIL	TOTAL
October	20.143	0.481	1.259	0.465	0.387	0.351	0.907	23.099	**47.092**
November	19.916	0.545	1.305	0.000	0.000	0.000	0.426	25.070	**47.262**
December	20.692	0.000	1.320	0.000	0.000	0.000	0.573	30.503	**53.088**
January	20.629	0.000	1.294	0.000	0.000	0.000	0.722	31.593	**54.238**
February	18.635	0.000	1.321	0.000	0.000	0.000	0.741	32.069	**52.766**
March	20.724	0.000	1.304	0.000	0.000	0.000	0.885	26.811	**49.724**
April	17.914	0.000	1.716	0.000	0.000	1.821	1.122	25.229	**47.802**
May	17.177	0.044	4.022	3.576	1.384	8.585	1.684	33.570	**70.042**
June	16.305	0.912	4.048	3.287	2.396	8.036	1.926	35.953	**72.863**
July	19.053	0.950	3.909	3.369	3.018	9.215	2.139	37.617	**79.270**
August	19.008	0.916	3.015	3.364	2.897	7.151	2.055	37.069	**75.475**
September	18.975	0.128	1.688	3.206	2.711	3.362	1.824	27.078	**58.972**
TOTAL	**229.171**	**3.976**	**26.201**	**17.267**	**12.793**	**38.521**	**15.004**	**365.661**	**708.594**

	CORPS OF ENGINEERS PLANTS							
MONTH	FORT PECK	GARRISON	OAHE	BIG BEND	FORT RANDALL	GAVINS POINT	TOTAL	MISSOURI BASIN TOTAL
October	38.745	85.351	151.465	59.341	154.436	74.719	**564.057**	**611.149**
November	39.437	85.865	170.045	67.403	132.382	69.601	**564.733**	**611.995**
December	48.912	111.259	132.755	50.414	64.464	38.367	**446.171**	**499.259**
January	49.163	111.452	114.206	46.748	66.201	37.961	**425.731**	**479.969**
February	44.988	100.760	100.143	40.160	59.589	35.046	**380.686**	**433.452**
March	45.317	99.396	151.391	58.846	98.634	50.322	**503.906**	**553.630**
April	39.059	86.132	175.547	71.475	123.397	60.417	**556.027**	**603.829**
May	70.301	106.810	137.443	59.355	126.805	60.948	**561.662**	**631.704**
June	81.193	172.552	272.193	98.212	146.062	63.854	**834.066**	**906.929**
July	84.982	179.593	233.394	94.508	167.744	68.095	**828.316**	**907.586**
August	86.675	180.714	244.937	93.913	181.815	72.978	**861.032**	**936.507**
September	62.680	144.581	199.760	78.946	181.688	77.952	**745.607**	**804.579**
TOTAL	**691.452**	**1,464.465**	**2,083.279**	**819.321**	**1,503.217**	**710.260**	**7,271.994**	**7,980.588**

TABLE CET4

WATER USED FOR POWER GENERATION (1,000 ACRE-FEET)
WATER YEAR 2002

MONTH	CANYON FERRY	BOYSEN	PILOT BUTTE	BUFFALO BILL RESERVOIR UNITS				YELLOWTAIL	FORT PECK	GARRISON	OAHE	BIG BEND	FORT RANDALL	GAVINS POINT
				SHOSHONE	BUFF. BILL	HEART MTN.	SPIRIT MTN.							
October	175.359	24.172	5.302	6.901	2.325	2.073	5.247	90.609	237.000	627.000	1,023.000	1,307.000	1,620.000	1,671.000
November	173.130	23.184	6.006	3.161	0.000	0.000	0.000	84.863	243.000	630.000	1,170.000	984.000	1,455.000	1,561.000
December	179.546	24.838	0.000	4.461	0.000	0.000	0.000	88.227	326.000	793.000	937.000	1,110.000	672.000	819.000
January	179.263	24.307	0.000	5.668	0.000	0.000	0.000	87.767	308.000	804.000	812.000	825.000	672.000	821.000
February	162.131	21.575	0.000	5.763	0.000	0.000	0.000	79.543	283.000	735.000	703.000	764.000	594.000	754.000
March	179.713	24.671	0.000	6.384	0.000	0.000	0.000	87.385	286.000	768.000	1,038.000	658.000	976.000	1,096.000
April	154.277	28.737	0.000	7.821	7.522	0.000	0.000	86.613	244.000	642.000	1,227.000	975.000	1,204.000	1,377.000
May	146.956	60.112	0.502	11.778	38.391	15.833	20.318	106.324	448.000	787.000	965.000	1,197.000	1,266.000	1,394.000
June	128.228	60.622	9.997	13.471	35.957	14.479	28.894	111.741	509.000	1,243.000	1,935.000	994.000	1,432.000	1,482.000
July	146.749	61.846	10.405	14.961	42.351	14.897	31.692	114.281	531.000	1,279.000	1,675.000	1,678.000	1,619.000	1,568.000
August	148.273	53.226	10.068	14.373	33.252	15.037	29.144	113.921	543.000	1,300.000	1,792.000	1,630.000	1,773.000	1,695.000
September	150.058	41.077	1.430	12.765	16.844	14.484	29.267	103.921	407.000	1,043.000	1,475.000	1,630.000	1,807.000	1,767.000
TOTAL	**1,923.683**	**448.367**	**43.710**	**107.507**	**176.642**	**76.803**	**144.562**	**1,155.195**	**4,365.000**	**10,651.000**	**14,752.000**	**13,752.000**	**15,090.000**	**16,005.000**

TABLE CET5

TOTAL RELEASE (1,000 ACRE-FEET)
WATER YEAR 2002

MONTH	CANYON FERRY	BOYSEN	PILOT BUTTE	BUFFALO BILL	YELLOWTAIL	FORT PECK	GARRISON	OAHE	BIG BEND	FORT RANDALL	GAVINS POINT
October	175.531	24.172	0.000	19.107	90.609	237.000	627.000	1,023.000	1,307.000	1,620.000	1,671.000
November	173.130	23.184	0.000	5.649	84.863	243.000	630.000	1,170.000	984.000	1,455.000	1,561.000
December	179.546	24.838	0.000	6.809	88.227	326.000	793.000	937.000	1,110.000	672.000	819.000
January	179.263	24.350	0.000	6.519	87.767	308.000	804.000	812.000	825.000	672.000	821.000
February	162.131	21.575	0.000	5.939	79.543	283.000	735.000	703.000	764.000	594.000	754.000
March	179.713	24.671	0.000	6.585	87.385	286.000	768.000	1,038.000	658.000	976.000	1,096.000
April	171.419	28.737	4.544	18.232	86.613	244.000	642.000	1,227.000	975.000	1,204.000	1,377.000
May	167.570	60.112	21.082	102.236	106.324	448.000	787.000	965.000	1,197.000	1,266.000	1,394.000
June	142.994	60.622	34.740	108.688	111.741	509.000	1,243.000	1,935.000	994.000	1,432.000	1,482.000
July	165.283	61.861	37.033	118.795	114.281	531.000	1,279.000	1,675.000	1,678.000	1,619.000	1,568.000
August	167.099	53.576	35.588	100.885	113.921	543.000	1,300.000	1,792.000	1,630.000	1,773.000	1,695.000
September	161.253	41.077	16.794	74.321	103.921	407.000	1,043.000	1,475.000	1,630.000	1,807.000	1,767.000
TOTAL	**2,024.932**	**448.775**	**149.781**	**573.765**	**1,155.195**	**4,365.000**	**10,651.000**	**14,752.000**	**13,752.000**	**15,090.000**	**16,005.000**

TABLE CET6

TOTAL RESERVOIR STORAGE CONTENTS (1,000 ACRE-FEET)
WATER YEARS 2001 AND 2002

BUREAU RESERVOIRS	TOP OF CONSERVATION CAPACITY **	DEAD AND INACTIVE CAPACITY	TOTAL STORAGE SEPTEMBER 30		END OF SEPTEMBER PERCENT OF AVERAGE	
			2001	2002	2001	2002
Clark Canyon	174.4	1.1	36.5	16.9	32	15
Canyon Ferry	1,891.9	396.0	1,394.6	1,687.6	84	101
Helena Valley	10.5	4.6	6.7	8.0	94	112
Gibson	96.5	0.0	7.7	26.2	26	89
Willow Creek	32.3	0.1	13.9	27.7	69	137
Pishkun	46.7	16.3	37.6	36.8	116	114
Lake Elwell	967.3	577.6	743.4	862.4	102	119
Sherburne	67.9	3.1	5.1	11.4	34	76
Fresno	92.9	0.4	20.7	44.3	40	85
Nelson	78.9	18.1	33.5	54.2	63	102
Bull Lake	152.5	0.7	26.9	40.9	32	49
Pilot Butte	33.7	3.8	3.8	6.1	19	30
Boysen	741.6	219.2	304.4	239.0	47	37
Anchor	17.2	0.1	0.3	0.3	N/A	N/A
Buffalo Bill*	646.6	41.7	267.4	358.9	83	111
Bighorn Lake	1,070.0	493.6	760.4	635.0	76	63
E. A. Patterson	8.6	0.5	7.7	6.4	122	102
Lake Tschida	67.1	5.2	57.9	52.2	97	88
Jamestown Reservoir	31.5	0.8	25.7	29.8	89	103
Shadehill Reservoir	120.2	43.9	105.4	81.2	92	71
Angostura Reservoir	130.8	48.3	103.2	78.2	109	82
Deerfield Reservoir	15.7	0.2	15.0	15.1	112	112
Pactola Reservoir	56.0	1.0	52.9	46.2	109	95
Keyhole Reservoir	193.8	8.0	157.3	117.0	152	113
Belle Fourche Reservoir	192.1	6.8	97.2	56.0	139	80
Subtotal	**6,120.8**	**1,776.3**	**3,662.9**	**4,055.7**		
CORPS RESERVOIRS						
Fort Peck	17,713.0	4,211.0	12,414.0	11,854.0		
Garrison	22,332.0	4,980.0	16,409.0	15,239.0		
Oahe	22,035.0	5,373.0	17,465.0	13,112.0		
Big Bend	1,799.0	1,682.0	1,751.0	1,727.0		
Fort Randall	4,433.0	1,517.0	3,412.0	3,181.0		
Gavins Point	411.0	321.0	398.0	386.0		
Subtotal	**68,723.0**	**18,084.0**	**51,849.0**	**45,499.0**		
TOTAL UPPER MISSOURI BASIN	**74,843.8**	**19,860.3**	**55,511.9**	**49,554.7**		

*Percent of average content of Buffalo Bill Reservoir is based on the historic 30 year average. This is not a true average since in 1992, the dam was raised and the capacity of the reservoir was increased to 646,565 acre-feet. A true average cannot be calculated until several years of operation occur under the increased storage.

** Includes joint-use space.

TABLE CET7

WATER YEAR 2002
End-of-Month Reservoir Contents
(1,000 Acre-Feet)

RECLAMATION RESERVOIRS	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
CLARK CANYON RESERVOIR	42.4	51.7	60.6	68.6	75.8	83.9	89.1	72.1	50.4	22.0	12.1	16.9
% of Average	34	39	44	49	53	55	55	45	33	16	11	15
CANYON FERRY RESERVOIR	1,382.7	1,405.1	1,393.1	1,397.5	1,390.3	1,396.3	1,435.9	1,470.0	1,860.0	1,833.2	1,738.2	1,687.6
% of Average	81	81	84	89	92	95	96	88	99	101	102	101
HELENA VALLEY RESERVOIR	6.6	6.3	6.0	5.8	5.6	5.4	9.3	10.1	9.3	9.8	8.6	8.0
% of Average	100	101	99	101	105	107	105	111	105	132	108	112
GIBSON RESERVOIR	13.1	18.3	21.8	25.7	29.0	32.9	45.5	84.0	95.1	60.6	25.1	26.2
% of Average	37	47	51	56	59	62	74	95	105	105	75	89
WILLOW CREEK	13.8	13.9	14.0	14.0	14.0	14.3	17.6	25.6	32.9	30.6	27.8	27.7
% of Average	66	64	63	62	61	60	70	92	118	135	139	137
PISHKUN RESERVOIR	37.0	36.6	36.2	36.0	35.9	36.2	36.4	45.4	40.1	31.5	46.8	36.8
% of Average	110	106	106	107	106	105	87	98	98	84	133	114
LAKE ELWELL (TIBER DAM)	720.0	703.5	689.3	681.6	676.4	673.2	712.7	812.0	1,016.2	936.3	905.2	862.4
% of Average	103	102	102	103	102	100	104	106	123	117	119	119
SHERBURNE LAKE	7.0	12.3	16.0	19.7	22.6	21.7	11.3	26.2	64.3	66.1	40.9	11.4
% of Average	40	56	64	71	76	81	49	75	117	137	142	76
FRESNO RESERVOIR	15.0	12.2	9.8	7.6	5.8	3.7	20.1	28.3	90.2	49.2	38.9	44.3
% of Average	28	23	19	15	11	5	23	35	113	81	78	85
NELSON RESERVOIR	32.9	32.1	31.3	30.5	30.0	29.4	31.4	39.0	35.5	38.6	46.9	54.2
% of Average	59	59	59	59	59	55	52	67	62	75	92	102
BULL LAKE	28.1	28.7	29.1	29.0	28.9	28.6	29.0	38.4	87.0	95.4	55.5	40.9
% of Average	33	34	34	34	34	34	35	41	66	72	51	49
PILOT BUTTE RESERVOIR	16.4	29.4	29.1	29.0	29.0	28.9	28.9	19.6	29.8	23.9	14.2	6.1
% of Average	66	114	114	114	114	105	92	68	99	90	62	30
BOYSEN RESERVOIR	299.5	296.6	302.0	306.2	310.1	323.8	323.8	288.1	300.1	271.2	244.2	239.0
% of Average	45	46	49	52	54	58	61	51	43	39	36	37
ANCHOR RESERVOIR	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.7	0.3	0.3	0.3	0.3
% of Average	N	O	T	A	V	A	I	L	A	B	L	E
*BUFFALO BILL RESERVOIR	261.3	272.5	276.1	280.2	283.3	287.5	299.8	316.0	496.3	492.1	415.6	358.9
% of Average	84	88	91	94	97	101	113	102	112	113	111	111
BIGHORN LAKE	772.1	769.1	741.7	717.1	685.5	680.3	673.0	658.6	709.5	670.0	628.4	635.0
% of Average	76	79	80	82	81	82	83	74	69	65	63	63
E. A. PATTERSON LAKE	7.5	7.5	7.6	7.6	7.7	8.0	8.5	8.4	8.5	7.6	7.1	6.4
% of Average	120	121	123	123	115	104	111	114	116	109	109	102
LAKE TSCHIDA	56.5	56.2	55.0	53.9	53.2	53.2	57.7	57.1	63.3	57.6	53.7	52.2
% of Average	94	93	92	90	85	73	82	83	92	88	88	88
JAMESTOWN RESERVOIR	26.0	27.2	28.5	29.6	30.7	32.1	32.8	31.6	31.1	31.2	31.2	29.8
% of Average	96	103	108	112	115	93	68	74	83	89	94	103
SHADEHILL RESERVOIR	100.5	98.6	96.7	94.9	93.8	93.8	94.1	92.4	90.0	86.8	84.3	81.2
% of Average	89	89	88	88	85	75	75	73	71	70	70	71
ANGOSTURA RESERVOIR	103.6	104.6	106.4	108.1	110.0	114.3	118.0	116.5	107.1	89.4	78.8	78.2
% of Average	107	107	107	106	104	100	100	97	89	82	79	82
DEERFIELD RESERVOIR	15.1	15.1	15.1	15.1	15.0	15.1	15.5	15.4	15.1	15.0	14.9	15.1
% of Average	114	111	108	105	103	102	105	104	102	104	108	112
PACTOLA RESERVOIR	53.3	53.6	53.4	53.5	53.6	54.0	55.7	56.0	54.6	50.2	47.0	46.2
% of Average	109	109	109	110	110	109	109	108	104	99	96	95
KEYHOLE RESERVOIR	155.7	155.0	154.6	154.4	154.7	155.9	157.6	156.8	146.6	129.3	122.0	117.0
% of Average	150	151	150	149	144	136	136	132	124	115	115	113
BELLE FOURCHE RESERVOIR	103.6	114.0	124.6	134.8	144.5	156.4	169.5	168.3	129.4	90.2	61.7	56.0
% of Average	125	122	121	119	118	113	113	108	87	78	76	80
CORPS RESERVOIRS	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**
FORT PECK RESERVOIR	12,338.0	12,296.0	12,152.0	12,073.0	12,035.0	12,019.0	12,074.0	11,941.0	12,278.0	12,247.0	12,024.0	11,854.0
GARRISON RESERVOIR	16,201.0	16,039.0	15,696.0	15,419.0	15,243.0	15,076.0	15,245.0	15,450.0	16,313.0	16,236.0	15,681.0	15,239.0
OAHE RESERVOIR	16,978.0	16,453.0	16,215.0	16,242.0	16,312.0	16,113.0	15,576.0	15,368.0	14,665.0	14,191.0	13,597.0	13,112.0
BIG BEND RESERVOIR	1,702.0	1,682.0	1,718.0	1,714.0	1,708.0	1,736.0	1,694.0	1,586.0	1,737.0	1,668.0	1,698.0	1,727.0
FORT RANDALL RESERVOIR	2,738.0	2,412.0	2,685.0	2,894.0	3,027.0	3,144.0	3,287.0	3,106.0	3,484.0	3,572.0	3,556.0	3,181.0
LEWIS AND CLARK LAKE	394.0	418.0	394.0	387.0	363.0	378.0	362.0	353.0	329.0	340.0	389.0	386.0

*Percent of average content of Buffalo Bill Reservoir is based on the historic 30 year average. This is not a true average since in 1992, the dam was raised and the capacity of the reservoir was increased to 646,565 acre-feet. A true average cannot be calculated until several years of operation occur under the increased storage.

TABLE CET8

WATER YEAR 2002
Monthly Inflow Amounts
(1,000 Acre-Feet)

RECLAMATION RESERVOIRS	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
CLARK CANYON RESERVOIR	9.8	11.4	10.0	9.2	8.2	10.9	6.3	5.4	10.5	8.8	7.7	6.8	105.2
% of Average	41	50	53	59	59	59	30	19	29	30	37	33	39
CANYON FERRY RESERVOIR	164.9	195.3	185.5	181.2	165.2	230.5	302.6	422.3	523.9	112.5	82.8	93.6	2,660.2
% of Average	57	67	78	81	76	85	90	78	74	34	48	45	70
HELENA VALLEY RESERVOIR	-0.6	-0.3	-0.3	-0.3	-0.1	-0.2	6.1	12.0	20.9	19.4	20.8	6.6	84.0
% of Average	N/A	N/A	N/A	N/A	N/A	N/A	107	103	143	126	128	82	120
GIBSON RESERVOIR	11.0	7.7	8.1	8.3	7.6	11.4	53.6	114.6	109.0	29.9	14.3	11.1	386.7
% of Average	64	46	55	62	64	77	134	75	62	45	54	59	68
WILLOW CREEK	-0.2	0.0	0.0	0.0	0.1	0.7	0.6	3.4	-0.3	-0.4	0.2	-0.3	3.9
% of Average	N/A	N/A	N/A	N/A	28	93	39	85	N/A	N/A	127	N/A	28
PISHKUN RESERVOIR	-0.4	-0.4	-0.1	-0.1	-0.1	-0.2	3.8	38.3	78.7	80.3	19.1	0.8	219.6
% of Average	N/A	N/A	N/A	N/A	N/A	N/A	47	104	123	113	50	7	95
LAKE ELWELL (TIBER DAM)	16.8	17.7	14.7	12.5	15.2	44.7	77.0	93.4	89.5	7.5	0.4	1.0	390.5
% of Average	91	85	79	77	68	97	132	67	58	15	3	8	68
SHERBURNE LAKE	3.9	2.6	2.5	2.2	2.2	5.2	15.0	27.7	32.3	15.5	7.9	4.0	121.1
% of Average	66	41	68	77	98	170	149	87	83	75	82	61	85
FRESNO RESERVOIR	18.8	5.2	3.0	1.1	1.1	30.5	27.9	34.0	39.6	34.7	31.7	12.2	239.8
% of Average	235	377	N/A	N/A	N/A	1450	311	152	102	80	98	51	133
NELSON RESERVOIR	13.5	-2.9	-2.3	-2.0	-1.8	8.2	7.4	2.6	8.6	-0.7	5.5	8.0	44.1
% of Average	337	N/A	N/A	N/A	N/A	318	95	33	100	N/A	78	147	99
BULL LAKE	4.0	2.1	1.3	1.1	1.4	1.7	2.4	27.8	47.6	32.4	14.5	6.3	142.6
% of Average	75	70	54	51	91	95	75	105	77	66	67	62	75
PILOT BUTTE RESERVOIR	12.6	9.6	-0.1	-0.1	0.0	-0.1	7.4	24.3	43.3	29.2	35.2	17.8	179.2
% of Average	158	692	N/A	N/A	N/A	N/A	82	109	112	68	109	75	99
BOYSEN RESERVOIR	34.0	29.6	31.7	34.5	30.3	56.0	37.0	71.4	114.8	39.1	25.1	44.7	548.2
% of Average	52	58	80	93	80	104	70	53	44	26	38	74	54
ANCHOR RESERVOIR	0.1	0.0	0.0	0.0	0.0	0.3	0.7	3.6	5.4	2.6	0.6	0.7	13.8
% of Average	19	7	2	6	4	148	84	83	73	100	95	94	78
*BUFFALO BILL RESERVOIR	15.6	12.6	11.2	13.0	10.6	17.2	48.8	193.4	291.9	133.8	20.3	14.3	782.7
% of Average	64	59	67	85	78	91	117	126	95	76	42	53	90
BIGHORN LAKE	116.3	78.2	58.1	57.5	47.2	95.6	73.3	143.4	244.1	87.5	78.4	128.8	1,208.3
% of Average	63	53	44	44	37	56	43	52	60	30	47	72	51
E. A. PATTERSON LAKE	-0.2	0.1	0.1	0.1	0.1	12.7	0.4	0.7	1.2	-0.4	-0.1	0.1	14.8
% of Average	-48	34	60	32	8	185	9	45	58	N/A	N/A	39	77
LAKE TSCHIDA	1.1	0.7	1.1	0.9	0.9	54.3	3.0	3.7	1.8	-1.5	-1.4	0.0	64.6
% of Average	59	47	103	71	16	183	16	48	19	N/A	N/A	7	78
JAMESTOWN RESERVOIR	0.1	-0.1	0.0	-0.2	-0.1	1.1	3.2	7.7	6.3	4.5	5.9	3.0	31.4
% of Average	6	N/A	N/A	N/A	N/A	13	13	79	184	101	136	233	52
SHADEHILL RESERVOIR	-0.6	0.0	-1.2	0.3	0.7	10.7	1.4	2.3	0.5	-1.7	-2.5	2.1	11.9
% of Average	N/A	N/A	N/A	16	15	47	9	17	7	N/A	N/A	N/A	16
ANGOSTURA RESERVOIR	0.5	2.2	2.3	2.4	2.8	16.9	3.5	3.2	9.6	-0.7	-0.6	0.8	42.8
% of Average	23	69	116	100	50	125	38	19	66	N/A	N/A	52	55
DEERFIELD RESERVOIR	0.6	0.6	0.6	0.4	0.5	1.5	1.6	1.2	1.1	0.5	0.5	0.5	9.7
% of Average	75	79	85	58	71	152	118	79	79	54	63	76	84
PACTOLA RESERVOIR	1.5	1.4	1.3	1.6	1.4	3.2	3.7	6.6	4.4	1.6	0.8	1.2	28.8
% of Average	66	80	88	110	94	118	79	93	66	44	25	52	74
KEYHOLE RESERVOIR	-1.2	-0.3	0.1	0.7	1.0	13.7	0.8	-0.3	4.6	-3.2	-4.0	-1.1	10.8
% of Average	N/A	N/A	39	123	36	186	34	N/A	316	N/A	N/A	N/A	74
BELLE FOURCHE RESERVOIR	10.0	10.5	9.9	10.0	10.5	23.6	12.1	10.8	6.6	-1.6	-0.2	9.7	111.8
% of Average	80	99	104	96	111	144	96	74	62	N/A	N/A	173	94

FIGURE CEG1

ANNUAL GENERATION AT USBR PLANTS

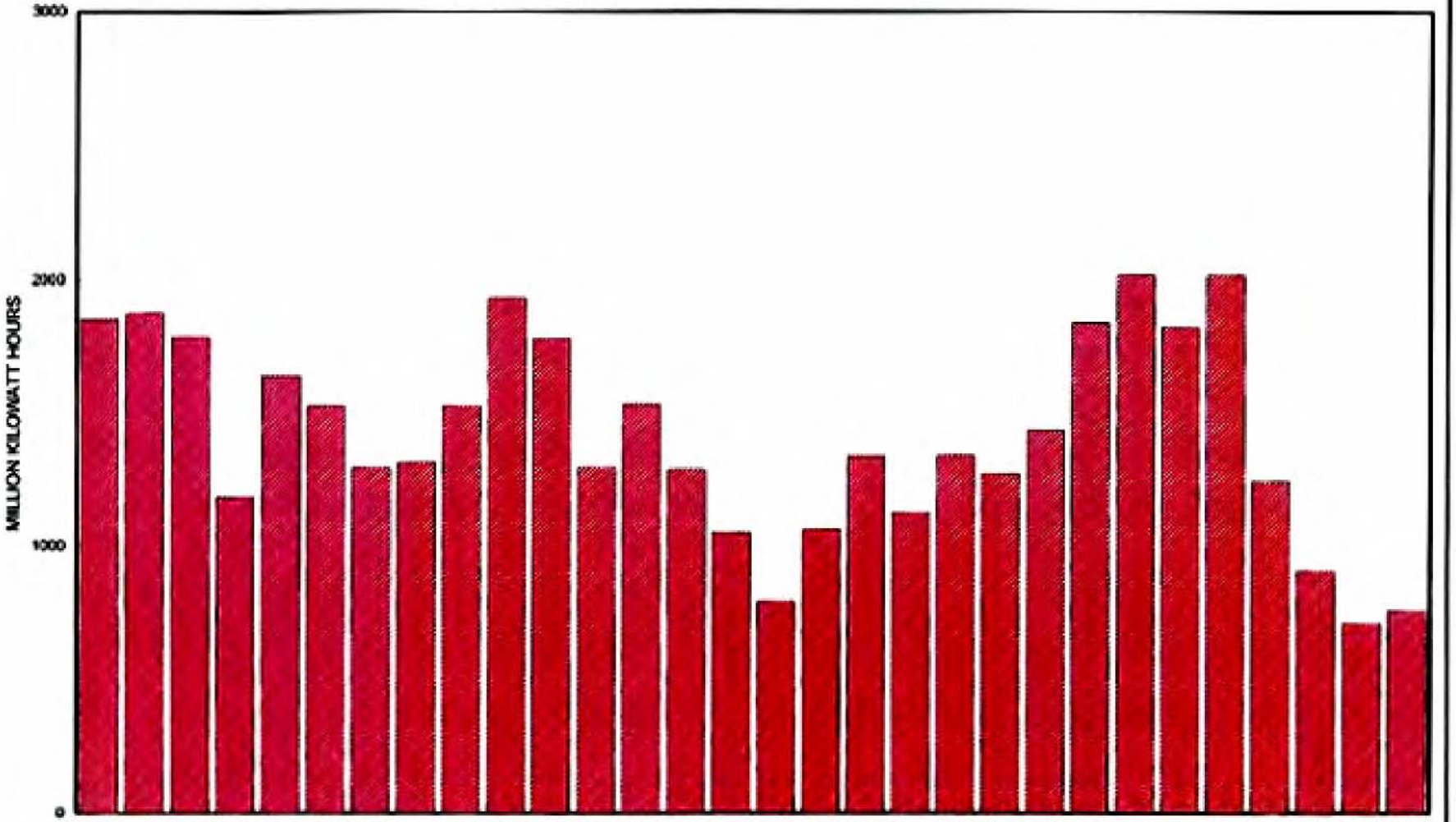


FIGURE CEG2

MONTHLY GENERATION AT USBR PLANTS

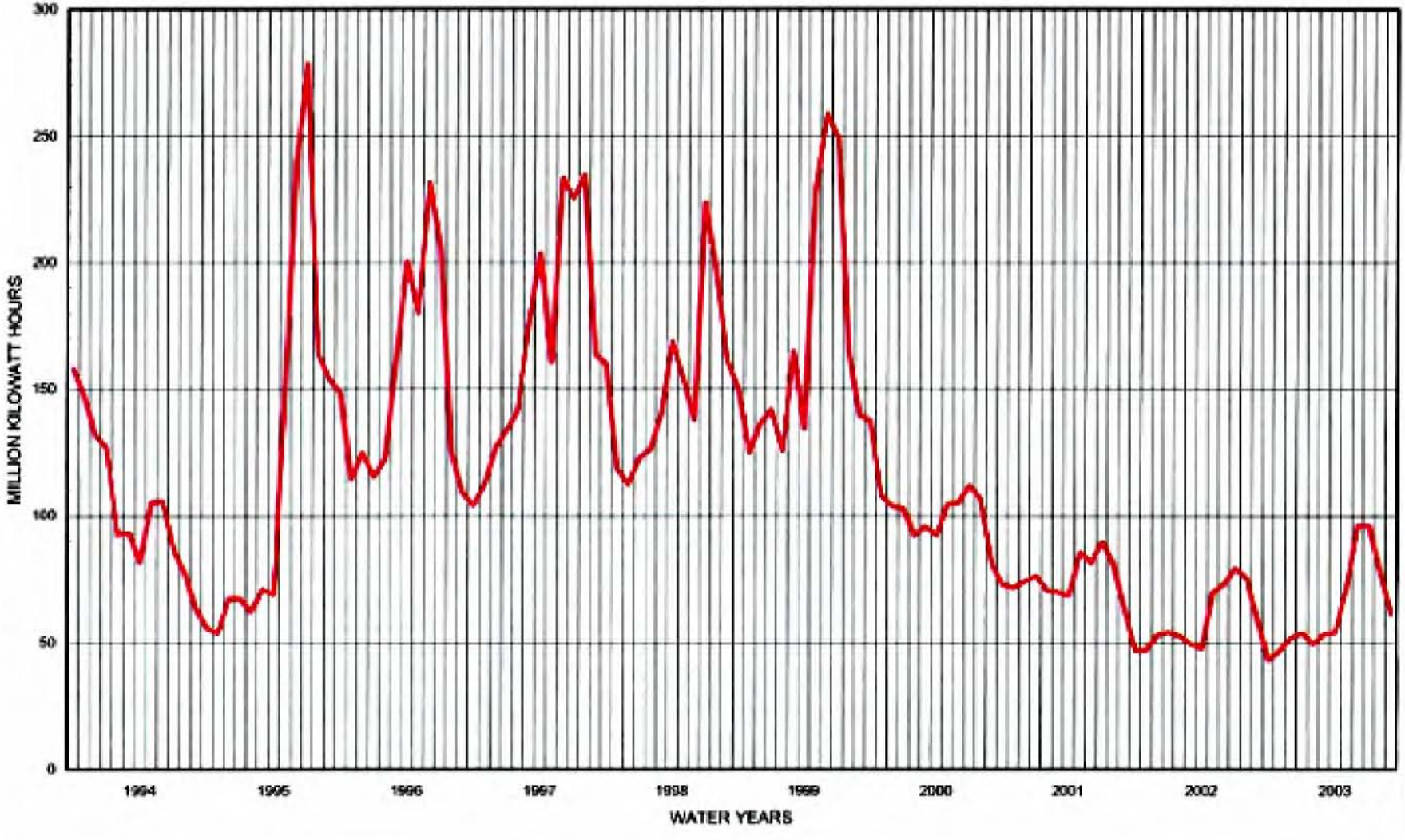


FIGURE CEG3

ANNUAL GENERATION AT COE PLANTS

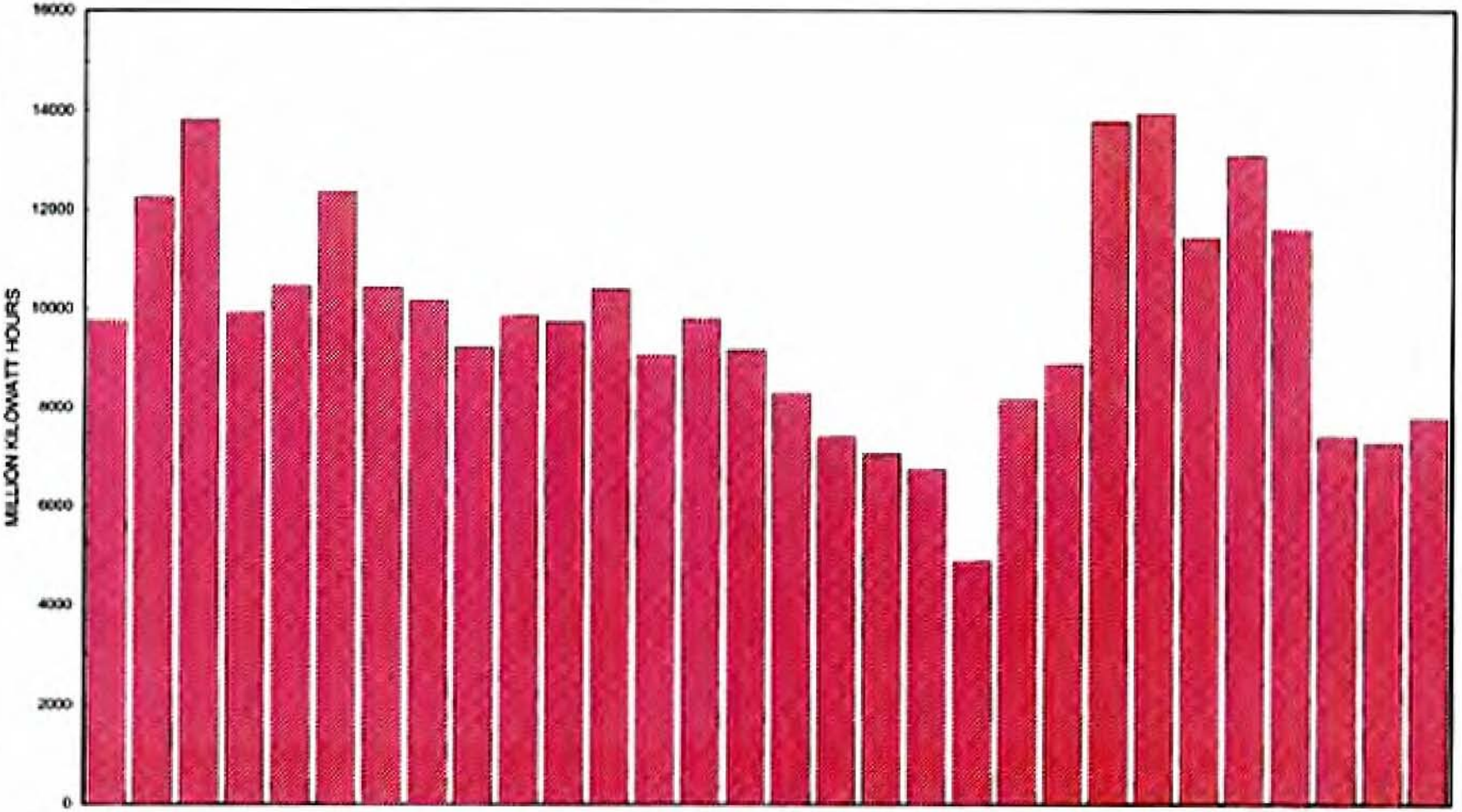


FIGURE CEG4

MONTHLY GENERATION AT COE PLANTS

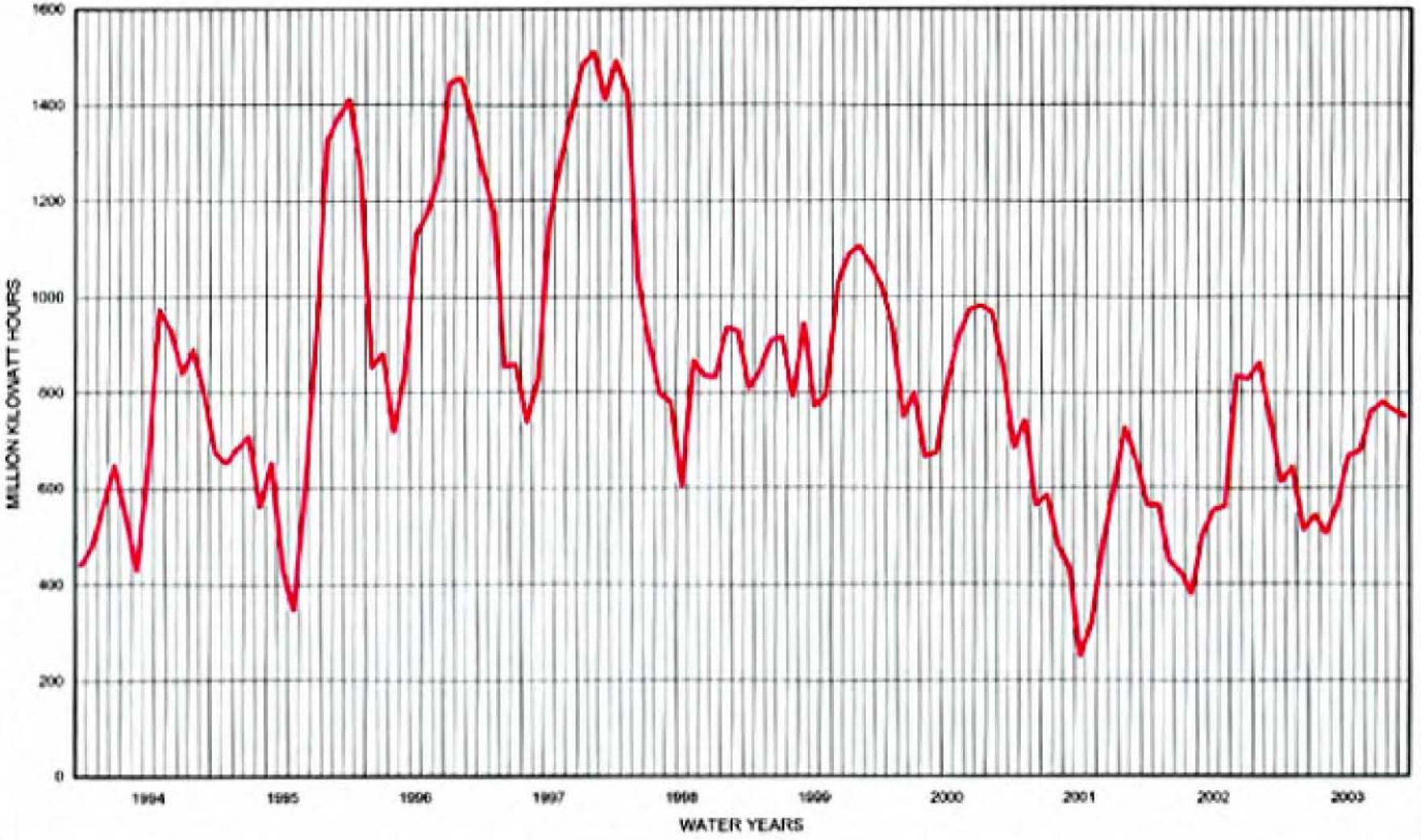


FIGURE CEG5

ANNUAL GENERATION - USBR & COE PLANTS

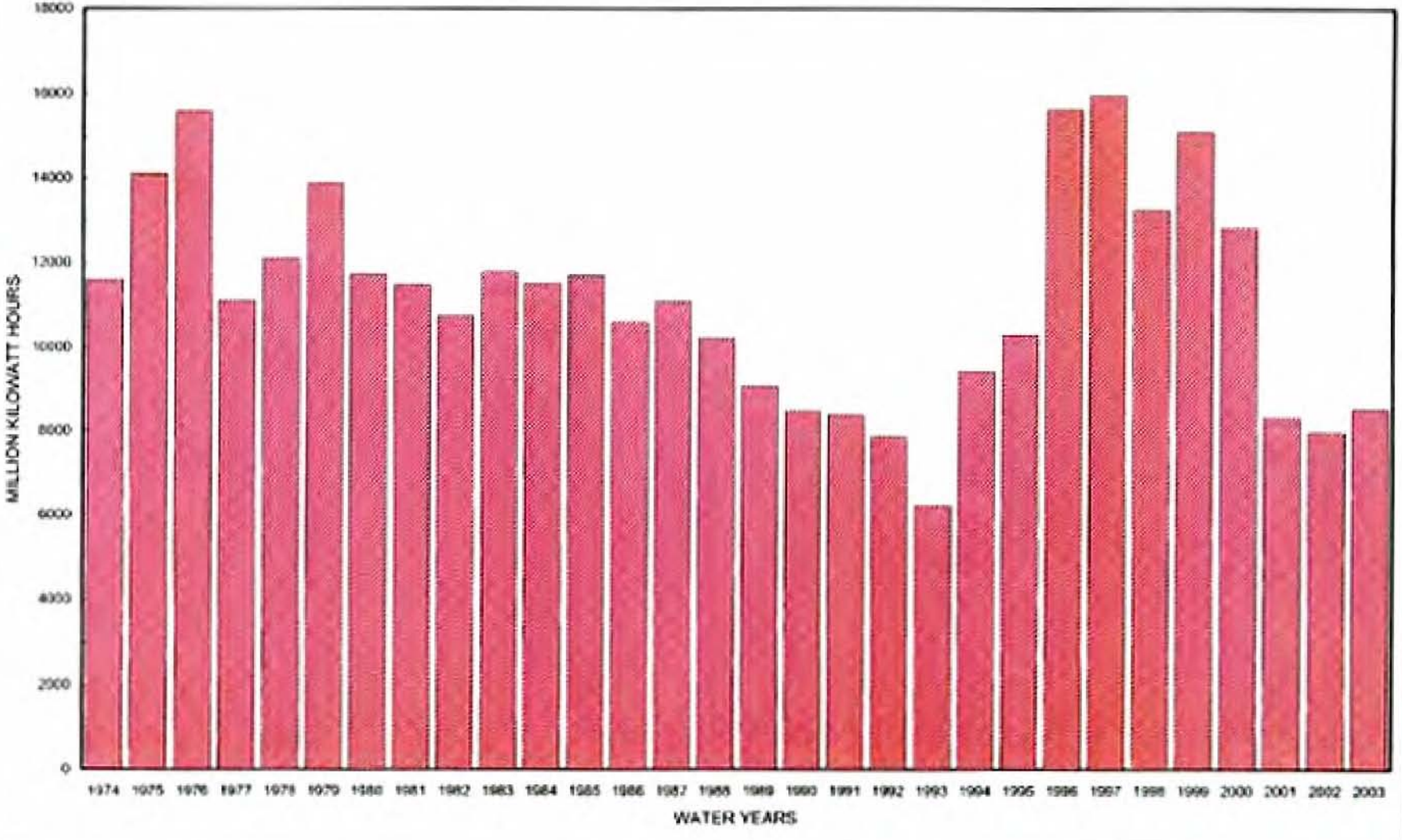


FIGURE CEG6

MONTHLY GENERATION - USBR & COE PLANTS