INTRODUCTION

Annual reports on actual operations and operating plans for reservoir regulation activities were initiated in 1953. The Montana Area Office (MTAO), Wyoming Area Office (WYAO), Dakotas Area Office (DKAO) and the Regional Office are all responsible for preparing reports on actual operations and operating plans for reservoirs 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 2011, which are principal factors governing the pattern of reservoir operations. This report also describes operations during water year 2011 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 year 2012, 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 as more reliable estimates of inflow become available.

A report section 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 discussed, and the energy generated in 2011 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 2010 and 2011," compares the water storage available at the beginning of water year 2012 to that available at the beginning of water year 2011. Table CET7 is a summary of the end of month storage contents for each reservoir during water year 2011. The MTAO also assists in the preparation of plans for operation of the Corps reservoir on the mainstem 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 OPERATIONS DURING 2011

Antecedent Conditions

The conditions that existed after the 2010 water year indicated that normal precipitation had returned to Montana. With cool temperatures and near average precipitation the outlook for the upcoming year looked to provide favorable runoff conditions. Ending the water year, the Marias River Basin in northwest Montana was the only basin still showing some signs of drought as the runoff for the year only came in at 68 percent of average, while all of the other basins were above 90 percent of average.

According to the Natural Resources Conservation Service (NRCS) the snowpack on April 1, 2010, ranged from 44 percent of average in the Sun River Basin to 73 percent of average in the Bighorn Basin in Wyoming. Snowpack improved considerably during April and by May 1 the snowpack increased and varied from 45 percent of average in the Sun River drainage to 161 percent of average in the Milk River Basin above Fresno.

Water year 2010 ended with varying storage levels. Gibson Reservoir was at 58 percent of average while Lake Sherburne was 369 percent of average, and for the second year Clark Canyon Reservoir which had been at extremely low levels through the 2000's finished the year at above average storage levels. The Reclamation reservoir with the least amount of carryover storage was Gibson Reservoir at 17 percent of full capacity.

October through December

At the beginning of water year 2011 the precipitation varied but was generally below average. Mountain precipitation throughout the basins in October ranged from 38 percent of average to 159 percent of average, while precipitation in the valleys in October ranged from 21 to 76 percent of average. By December, the accumulated precipitation throughout the basins had improved considerably, with the majority of the basins ranging from normal to above normal range. By the end of December, the accumulated mountain precipitation ranged from 71 percent of average in the mountains above Gibson Reservoir to 142 percent of average in the mountains above Lima Reservoir. Valley precipitation ranged from 65 percent of average in the Sun River Valley drainage to 167 percent of average in the Milk River Valley drainage. Precipitation data can be found in Tables MTT1A, MTT1A-1, MTT1B, and MTT1B-1.

TABLE MTT1A
PRECIPITATION IN INCHES AND PERCENT OF AVERAGE
2011 VALLEY PRECIPITATION

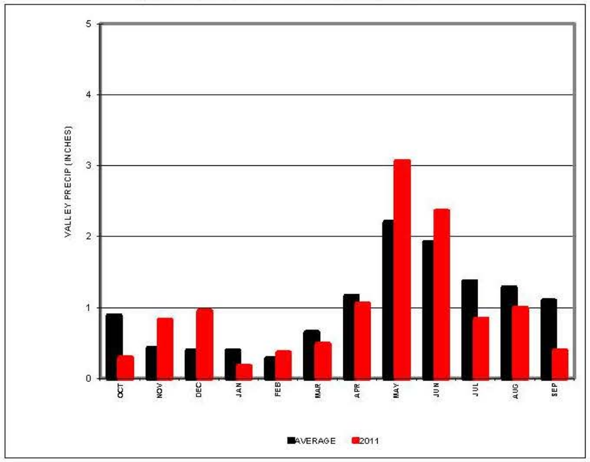
BASIN	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP	
	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
Beaverhead																								
Monthly Precip Average	0.89		0.43		0.39		0.39		0.28		0.65		1.16		2.20		1.92		1.37		1.28		1.09	
Monthly Precip and % of Average	0.29	33	0.82	193	0.95	244	0.17	42	0.36	129	0.48	74	1.05	91	3.06	139	2.36	123	0.84	61	0.99	77	0.39	36
Year-to-Date Precip and % of Average	0.29	33	1.11	85	2.06	121	2.23	106	2.59	109	3.07	102	4.12	99	7.18	113	9.53	115	10.37	107	11.36	104	11.75	98
Jefferson																								
Monthly Precip Average	0.80		0.58		0.47		0.48		0.35		0.71		1.13		2.14		2.12		1.47		1.36		1.13	
Monthly Precip and % of Average	0.50	63	0.89	154	0.82	173	0.19	39	0.37	105	0.51	71	1.30	115	2.48	116	2.48	117	0.81	55	0.75	55	0.39	34
Year-to-Date Precip and % of Average	0.50	63	1.39	101	2.21	120	2.39	103	2.76	103	3.27	97	4.57	101	7.05	106	9.53	109	10.34	101	11.09	96	11.47	90
Madison																								
Monthly Precip Average	1.49		1.77		2.04		1.87		1.55		1.88		1.70		2.78		2.71		1.81		1.61		1.67	
Monthly Precip and % of Average	1.13	76	1.75	99	2.05	100	2.25	121	1.41	91	3.08	164	1.92	113	2.95	106	3.51	129	1.21	67	0.91	56	0.40	24
Year-to-Date Precip and % of Average	1.13	76	2.89	89	4.93	93	7.18	100	8.59	99	11.67	110	13.59	111	16.53	110	20.04	113	21.25	108	22.16	105	22.56	99
Gallatin																								
Monthly Precip Average	1.61		1.10		0.79		0.84		0.70		1.40		2.06		3.22		2.85		1.44		1.48		1.79	
Monthly Precip and % of Average	0.91	57	2.49	226	0.70	89	0.82	98	1.06	151	1.83	131	3.50	170	2.99	93	3.44	121	1.23	85	0.90	61	0.69	39
Year-to-Date Precip and % of Average	0.91	57	3.40	125	4.10	117	4.92	113	5.98	119	7.81	121	11.31	133	14.30	122	17.74	122	18.97	118	19.87	114	20.56	107
Missouri Above Toston																								
Monthly Precip Average	1.06		1.01		1.02		0.97		0.78		1.16		1.38		2.44		2.37		1.57		1.46		1.37	
Monthly Precip and % of Average	0.73	69	1.35	133	1.18	116	0.94	98	0.79	102	1.50	129	1.69	122	2.51	103	2.96	125	0.93	59	0.93	64	0.40	29
Year-to-Date Precip and % of Average	0.73	69	2.08	100	3.26	105	4.20	103	4.99	103	6.48	108	8.17	111	10.68	109	13.64	112	14.57	106	15.50	102	15.89	96
Sun-Teton																								
Monthly Precip Average	1.17		1.29		1.22		1.33		1.03		1.12		1.41		2.63		2.55		1.54		1.67		1.43	
Monthly Precip and % of Average	0.44	38	0.96	75	0.97	80	1.34	91	1.22	119	1.69	151	2.20	156	3.83	146	4.11	161	1.16	75	0.37	22	0.54	38
Year-to-Date Precip and % of Average	0.44	38	1.41	57	2.38	65	3.72	74	4.93	82	6.62	93	8.82	103	12.65	113	16.76	122	17.92	117	18.29	108	18.83	103
Marias																								
Monthly Precip Average	0.57		0.43		0.38		0.39		0.28		0.59		0.93		2.11		2.43		1.41		1.56		1.13	
Monthly Precip and % of Average	0.24	41	0.80	188	0.59	157	0.47	121	0.64	227	0.73	124	1.08	116	2.53	120	3.18	131	0.66	47	0.24	16	0.46	41
Year-to-Date Precip and % of Average	0.24	41	1.04	104	1.63	118	2.10	119	2.74	134	3.47	132	4.55	128	7.08	125	10.26	126	10.92	115	11.17	101	11.63	95
Milk																								
Monthly Precip Average	0.60		0.43		0.42		0.41		0.30		0.52		0.86		2.01		2.23		1.58		1.18		1.20	
Monthly Precip and % of Average	0.19	31	1.19	278	1.06	250	1.00	243	0.27	89	1.12	213	0.97	113	4.17	208	3.05	137	1.16	73	0.74	62	0.29	24
Year-to-Date Precip and % of Average	0.19	31	1.37	133	2.43	167	3.43	184	3.70	171	4.82	179	5.79	163	9.96	179	13.01	167	14.16	151	14.90	141	15.19	129
St. Mary																								
Monthly Precip Average	1.47		1.98		1.94		1.86		1.36		1.49		1.52		2.82		2.97		1.86		2.00		1.75	
Monthly Precip and % of Average	0.31	21	2.35	118	2.27	117	2.28	123	2.47	182	2.05	137	3.63	240	3.26	116	3.06	103	1.27	68	0.27	14	1.07	61
Year-to-Date Precip and % of Average	0.31	21	2.66	77	4.93	91	7.21	99	9.68	112	11.72	116	15.35	132	18.61	129	21.67	125	22.93	119	23.20	109	24.27	106
Bighorn Above Yellowtail																								
Monthly Precip Average	0.82		0.47		0.33		0.34		0.29		0.61		1.17		1.95		1.35		0.97		0.73		1.05	
Monthly Precip and % of Average	0.37	45	0.63	135	0.43	131	0.32	93	0.61	208	0.37	60	1.33	113	5.37	276	1.37	102	0.26	27	0.59	81	0.29	28
Year-to-Date Precip and % of Average	0.37	45	1.00	78	1.44	89	1.75	89	2.37	105	2.73	95	4.06	101	9.43	158	10.80	147	11.07	133	11.66	129	11.95	118

A composite of the following National Weather Service stations was used to determine monthly valley precipitation and percent of average for the drainage basins:

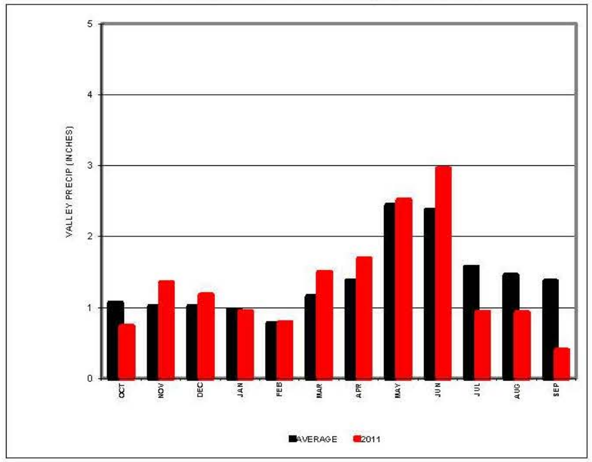
Beaverhead..................Lima and Dillon
Jefferson...................Lima, Dillon, Virginia City, and Boulder
Madison.....................Hebgen, West Yellowstone, and Norris Madison
Gallatin....................Bozeman
Missouri Above Toston.......Townsend, Lima, Dillon, Virginia City, Boulder, Hebgen, West Yellowstone, Norris Madison, and Bozeman
Sun-Teton...................Summit, Choteau, Fairfield, Augusta, and Gibson
Marias......................Cut Bank, Conrad, Valier, Gold Butte, and Chester
Milk........................Havre, Chinook, Harlem, Malta, and Rudyard
St. Mary....................Babb and East Glacier
Bighorn Above Yellowtail....Buffalo Bill, Sunshine, Boysen Dam, Dubois, Gas Hills, Lander, Riverton, Basin, Lovell, Thermopolis, and Worland

TABLE MTT1A-1
PRECIPITATION IN INCHES AND PERCENT OF AVERAGE
2011 VALLEY PRECIPITATION

CLARK CANYON RESERVOIR



CANYON FERRY RESESRVOIR



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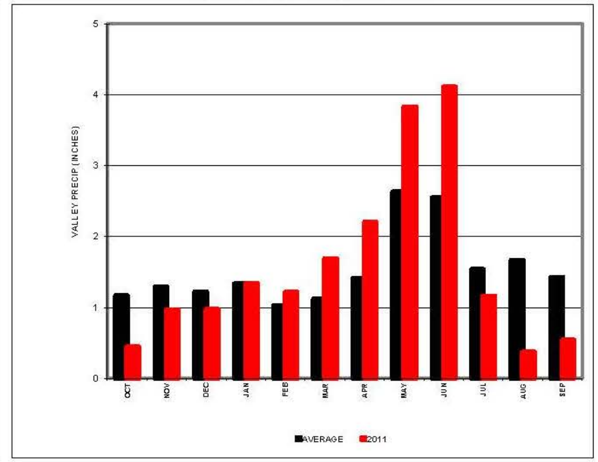
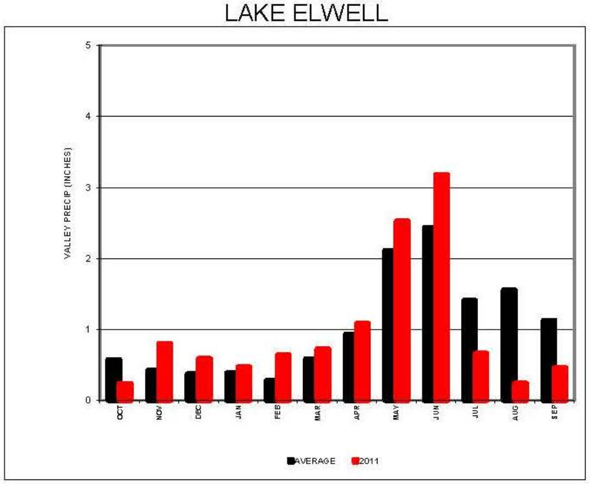
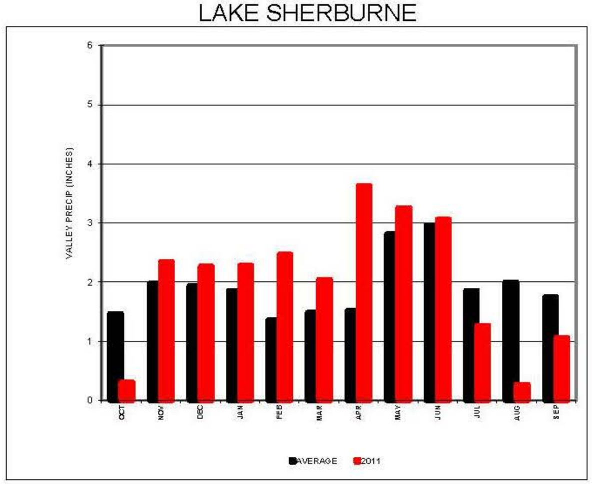


LAKE ELWELL



LAKE SHERBURNE



BIGHORN LAKE

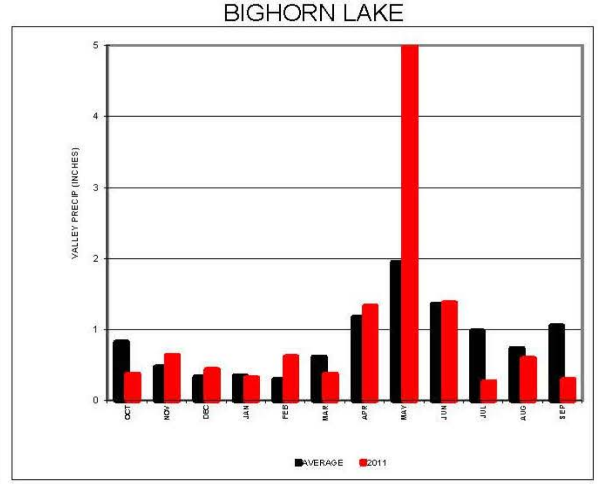


TABLE MTT1B
PRECIPITATION IN INCHES AND PERCENT OF AVERAGE
2011 MOUNTAIN PRECIPITATION

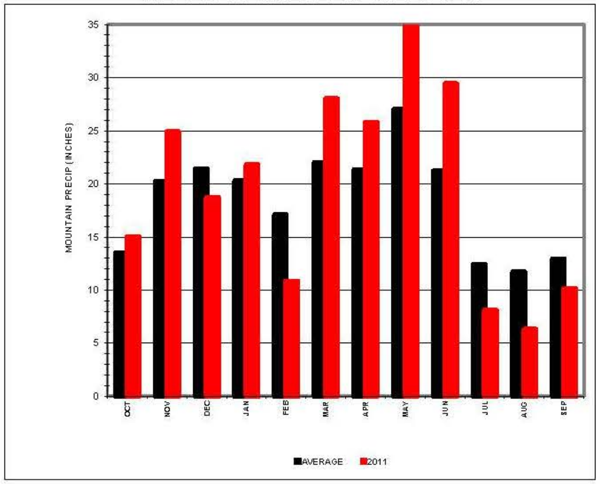
BASIN	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP	
	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
Lima Reservoir																								
Monthly Precip Average	8.70		12.60		14.20		14.20		13.10		15.70		13.00		16.00		14.20		8.70		8.40		9.40	
Monthly Precip and % of Average	13.80	159	22.10	175	14.40	101	10.50	74	7.80	60	21.00	134	14.80	114	17.80	111	24.80	175	7.80	90	4.60	55	9.60	102
Year-to-Date Precip and % of Avera	13.80	159	35.90	169	50.30	142	60.80	122	68.60	109	68.60	114	104.40	114	122.20	114	147.00	121	154.80	119	159.40	115	169.00	114
Clark Canyon Reservoir																								
Monthly Precip Average	13.50		20.20		21.40		20.30		17.10		22.00		21.30		27.00		21.20		12.40		11.70		12.90	
Monthly Precip and % of Average	15.00	111	24.90	123	18.70	87	21.80	107	10.80	63	28.00	127	25.80	121	36.00	133	29.40	139	8.10	65	6.30	54	10.10	78
Year-to-Date Precip and % of Avera	15.00	111	39.90	118	58.60	106	80.40	107	91.20	99	119.20	104	145.00	107	181.00	111	210.40	114	218.50	111	224.80	108	234.90	106
Jefferson Drainage																								
Monthly Precip Average	31.40		45.80		48.90		47.50		39.30		47.60		48.80		58.20		45.90		28.00		26.60		29.00	
Monthly Precip and % of Average	32.90	105	53.70	117	47.70	98	55.70	117	27.20	69	57.90	122	62.30	128	78.30	135	63.00	137	18.70	67	13.30	50	16.60	57
Year-to-Date Precip and % of Avera	32.90	105	86.60	112	134.30	107	190.00	109	217.20	102	275.10	106	337.40	109	415.70	113	478.70	116	497.40	113	510.70	109	527.30	106
Madison Drainage																								
Monthly Precip Average	21.30		33.10		35.30		35.90		30.90		36.40		30.20		32.90		26.00		15.90		14.90		17.90	
Monthly Precip and % of Average	20.70	97	43.70	132	38.90	110	38.90	91	22.40	72	48.40	133	43.17	143	50.47	153	33.90	130	11.30	71	6.60	44	12.40	69
Year-to-Date Precip and % of Avera	20.70	97	64.40	118	103.30	115	103.30	108	158.50	101	206.90	107	250.07	112	300.53	117	334.43	119	345.73	116	352.33	113	364.73	110
Gallatin Drainage																								
Monthly Precip Average	9.40		11.20		11.30		11.40		9.90		14.90		14.40		15.90		13.10		7.20		6.70		8.20	
Monthly Precip and % of Average	7.70	82	17.50	156	8.80	78	10.80	95	9.50	96	16.20	109	18.77	130	22.77	143	13.30	102	3.20	44	4.00	60	2.40	29
Year-to-Date Precip and % of Avera	7.70	82	25.20	122	34.00	107	44.80	103	54.30	102	70.50	104	89.27	108	112.03	114	125.33	112	128.53	108	132.53	106	134.93	101
Canyon Ferry Reservoir																								
Monthly Precip Average	51.80		75.90		80.70		80.40		67.80		82.40		77.60		89.30		70.60		42.20		40.20		45.80	
Monthly Precip and % of Average	51.50	99	96.10	127	83.00	103	84.90	106	50.80	75	103.40	125	107.27	138	125.77	141	93.60	133	28.60	68	19.90	50	23.80	52
Year-to-Date Precip and % of Avera	51.50	99	147.60	111	230.60	111	315.50	109	366.30	103	469.70	107	576.97	112	702.73	116	796.33	118	824.93	115	844.83	111	868.63	108
Gibson Reservoir																								
Monthly Precip Average	9.70		13.60		13.90		13.40		11.00		11.40		11.00		14.80		15.00		7.70		9.10		8.70	
Monthly Precip and % of Average	3.70	38	9.50	70	13.10	94	16.20	121	15.90	145	12.20	107	21.20	193	21.90	148	16.30	109	6.00	78	0.80	9	4.30	49
Year-to-Date Precip and % of Avera	3.70	38	13.20	71	26.30	71	42.50	84	58.40	95	70.60	97	91.80	109	113.70	115	130.00	114	136.00	112	136.80	105	141.10	101
Lake Elwell Reservoir																								
Monthly Precip Average	14.70		22.30		23.70		25.20		19.50		19.80		17.30		20.70		19.80		10.50		12.80		12.80	
Monthly Precip and % of Average	7.50	51	17.00	76	23.00	97	30.00	119	24.00	123	22.10	112	35.20	203	28.60	138	22.60	114	7.40	70	0.30	2	6.60	52
Year-to-Date Precip and % of Avera	7.50	51	24.50	78	47.50	78	77.50	90	101.50	96	123.60	99	158.80	111	187.40	115	210.00	115	217.40	112	217.70	106	224.30	102
Sherburne Reservoir																								
Monthly Precip Average	9.80		16.50		16.20		15.70		12.10		11.20		9.60		10.00		10.30		6.00		5.10		6.80	
Monthly Precip and % of Average	8.20	84	15.10	92	13.80	85	13.80	132	12.70	105	15.40	138	17.25	180	9.78	98	9.30	90	5.60	93	1.70	33	3.80	56
Year-to-Date Precip and % of Avera	8.20	84	23.30	89	37.10	87	57.90	99	70.60	100	86.00	106	103.25	113	113.03	112	122.33	110	127.93	109	129.63	106	133.43	103
Bighorn Lake																								
Monthly Precip Average	42.30		48.80		43.20		42.20		34.80		50.10		63.00		69.70		55.60		37.70		26.10		42.20	
Monthly Precip and % of Average	34.00	80	47.70	98	49.80	115	58.20	138	35.70	103	58.00	116	96.30	153	139.80	201	45.60	82	14.50	38	12.60	48	11.40	27
Year-to-Date Precip and % of Avera	34.00	80	81.70	90	131.50	98	189.70	107	225.40	107	283.40	108	379.70	117	519.50	132	565.10	126	579.60	119	592.20	115	603.60	109

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:

Lima Reservoir.............Crab Creek, Island Park, Tepee Creek, Divide, and Lakeview Ridge
Clark Canyon Reservoir.....Beagle Springs, Darkhorse Lake, Lemhi Ridge, Tepee Creek, Divide, Bloody Dick, and Lakeview Ridge
Jefferson Drainage.........Beagle Springs, Clover Meadow, Darkhorse Lake, Mule Creek, Lemhi Ridge, Rocker Peak, Tepee Creek, Clavert Creek, Saddle Mountain, Lower Twin, Divide, Bloody Dick, Lakeview Ridge, Short Creek, Frohner Meadow, and Moose Creek
Madison Drainage...........Carrot Basin, Clover Meadow, Tepee Creek, Black Bear, Lower Twin, Beaver Creek, Madison Plateau, and Whiskey Creek
Gallatin Drainage..........Carrot Basin, Shower Falls, and Lick Creek
Canyon Ferry Reservoir.....Beagle Springs, Darkhorse Lake, Carrot Basin, Clover Meadow, Shower Falls, Mule Creek, Rocker Peak, Black Bear, Saddle Mountain, Lower Twin, Beaver Creek, Madison Plateau, Short Creek, Lick Creek, Whiskey Creek, Frohner Meadow, Calvert Creek, Moose Creek, Lemhi Ridge, Tepee Creek, Divide, Bloody Dick, and Lakeview Ridge
Gibson Reservoir...........Mount Lockhart, Wood Creek, Dupuyer Creek, and Waldron
Lake Elwell Reservoir......Mount Lockhart, Badger Pass, Pike Creek, Dupuyer Creek, and Waldron
Sherburne Reservoir........Flattop Mountain and Many Glacier
Bighorn Lake...............Kirwin, Blackwater, Evening Star, Shell Creek, Powder River, Bald Mountain, Bone Springs Divide, Owl Creek, Sucker Creek, Dome Lake, Hansen Sawmill, Timber Creek, Bear Trap Meadow, Burgess Junction, Middle Powder, Marquette, Sylvan Lake, Younts Peak, and Sylvan Road

TABLE MTT1B-1
PRECIPITATION IN INCHES AND PERCENT OF AVERAGE
2011 MOUNTAIN PRECIPITATION

CLARK CANYON RESERVOIR



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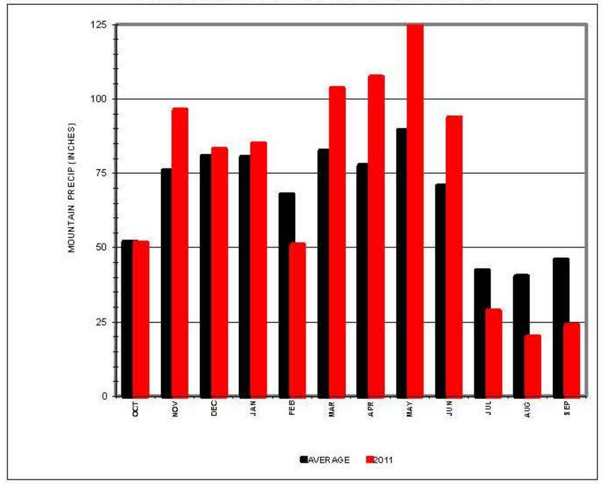
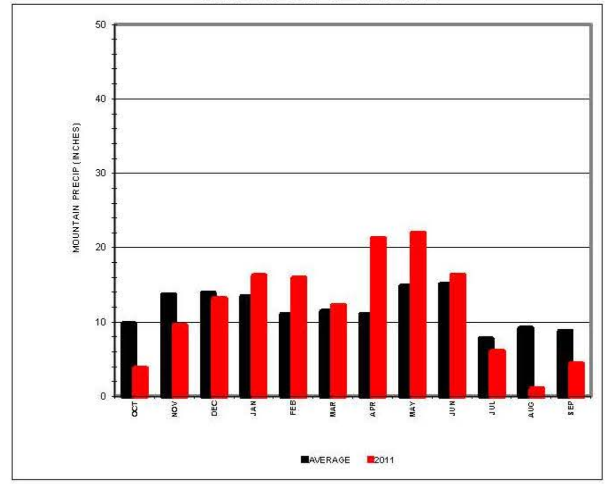
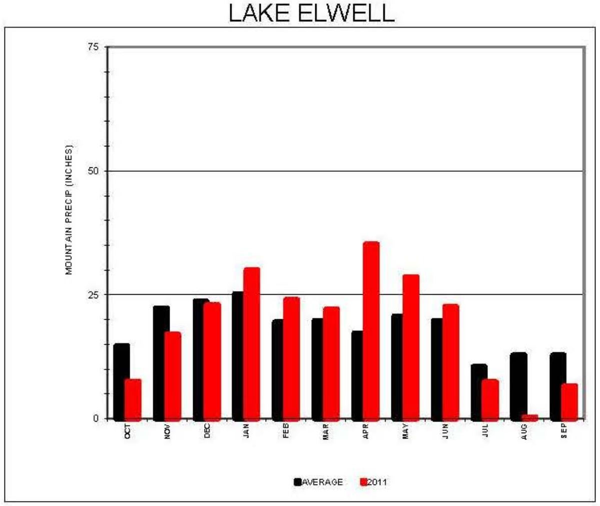


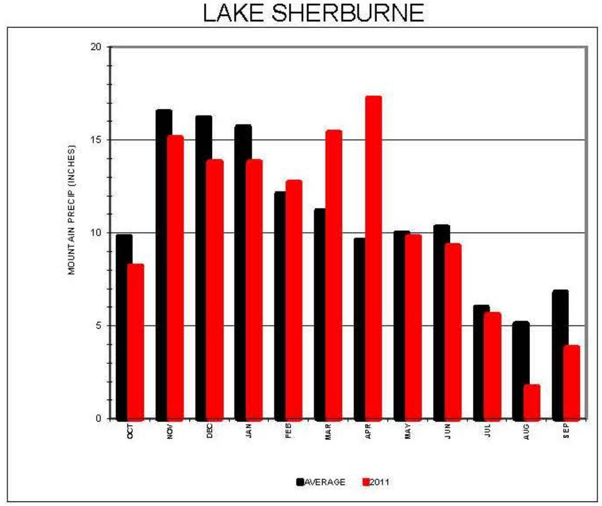
GIBSON RESERVOIR



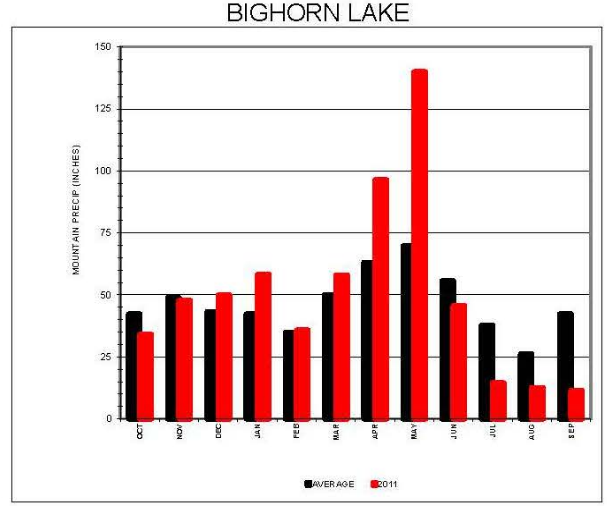
LAKE ELWELL



LAKE SHERBURNE



BIGHORN LAKE



January through March

During the January through March timeframe precipitation patterns continued to improve and operations in a few of the basins were changing from conservation to evacuation to make room for the anticipated runoff from the snowpack. During this timeframe, snowpack accumulated quickly on the prairies of northern Montana and southern Alberta along the Milk River drainage. The cold weather was causing the inflows in various locations to drop to low levels, but snowpack indicators signaled that as soon as the weather warmed to near normal, streamflows would quickly increase. Ice jam problems were noted in various locations especially in the stretch between Clark Canyon Dam on the Beaverhead and Canyon Ferry Reservoir on the Missouri. No major damage was caused and as the temperatures warmed above freezing the jams broke free.

By the end of March, cumulative valley precipitation varied from 179 percent of average in the Milk River Basin to 93 percent of average in the Sun River Basin. Mountain precipitation ranged from 97 percent of average in the Sun River Basin to 114 percent of average in the Red Rocks River Basin.

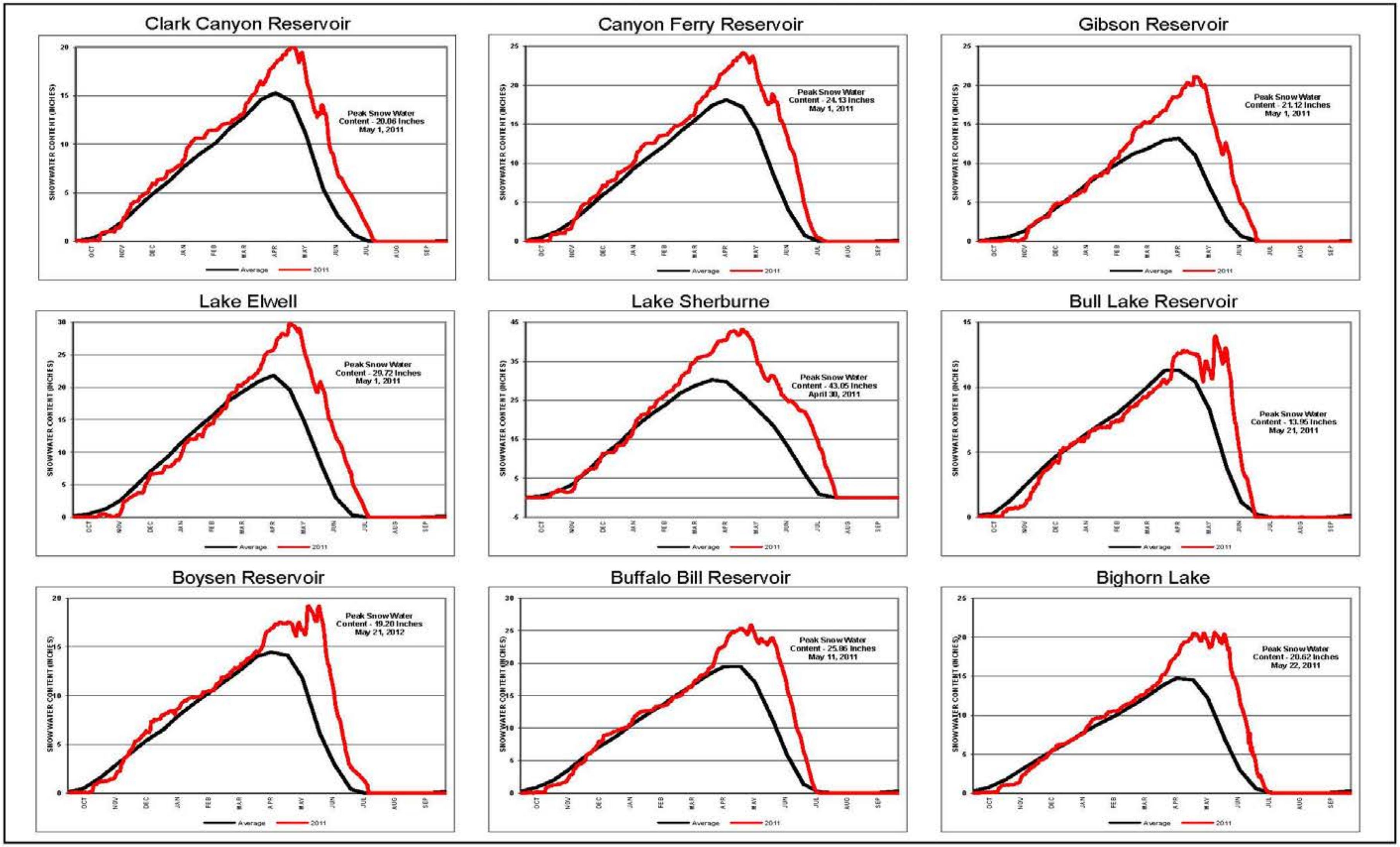
Throughout February and March with the high prairie snowpack accumulations, releases from Fresno Reservoir were increased to evacuate storage in anticipation of the spring snowmelt.

April through June

After March, well above average precipitation continued through June which caused the snowpack to continue accumulating during April and May and into early June. In the Bearpaw Mountains near Havre the snowpack reached 334 percent of normal levels by May 1. Cumulative precipitation percentages for the year increased in all the basins except two during this period, likely due to how high the cumulative percentages on the Milk and Marias already were. At the end of June, valley precipitation had increased to 109 percent of average in the Jefferson Basin to 167 percent of average in the Milk River Basin, and mountain precipitation ranged from 110 percent of average above Sherburne Reservoir to 126 percent of average in the Bighorn Basin above Yellowtail.

Normally the higher elevation snowpack reaches peak accumulations around the middle of April and begins to melt out. Several large spring storm systems moved into eastern Montana, northeastern Wyoming and much of western North Dakota, dumping records amounts of precipitation during May. The first storm system moved into the area on May 8-10, dumping as much as 5.00 inches of precipitation in and around the Miles City area of Montana. A second large major storm system moved into the Bighorn and lower Yellowstone River Basins again dumping records amounts of precipitation during May 18-26. Because of the cooler temperatures experienced in April and May, snowpack accumulations continued to increase during May and June. The peak snowpack for Reclamation reservoirs occurred between April 30 and May 22, Figure MTG1.

Figure MTG1
WATER YEAR 2011
SNOW WATER CONTENT



July through September

During July through September, precipitation was widely scattered across much of Montana and northern Wyoming. August temperatures were above average while the August precipitation much less than average. The mountain precipitation varied from only two percent of average in the basin above Tiber to 60 percent of average in the Gallatin River Basin. The valley precipitation varied from 14 percent of average in the St. Mary River Basin to 81 percent of average in the Bighorn River Basin. During July, temperatures were below average, allowing for reduced irrigation demands and better carryover storage for next season. Generally speaking, most of Montana experienced very dry conditions, with precipitation across Montana during September at or near record low amounts.

Reservoir Storage, Releases and Inflows

At the beginning of 2011, storages in all of the Reclamation reservoirs were at or above average with the exception of Gibson Reservoir in the Sun River Basin which was 58 percent of average. On October 1, reservoir storage in the Upper Missouri River Basin totaled 2,811,500 acre-feet, and was 104 percent of average. Storage for the Milk River Project totaled 184,700 acre-feet and was 176 percent of normal. Storage in Bighorn Lake totaled 960,900 acre-feet and was 94 percent of normal. Due to the low snowpack development throughout the winter months, and the predictions for the upcoming spring inflows, storage in some reservoirs were allowed to slowly increase through the fall and winter, with hopes of being able to fill by May or June of 2011. By the end of March, storage levels ranged from 58 percent of normal at Gibson Reservoir to 369 percent of normal at Lake Sherburne. Due to the good spring precipitation received during late April and May (as shown below), inflows improved in many basins located in north-central and southwest Montana to above average levels. As a result, storage conditions improved dramatically in May. With cool temperatures in April and May the snowmelt runoff came off later than the normal timeframe. This proved to be beneficial to water managers, especially during the time when several large spring storms in late May and early June dumped large amounts of rain across much of eastern Montana. In the Bighorn River Basin these storms created significant flooding in the basin downstream of Yellowtail Dam in late May. With the high runoff volumes produced by these rains, releases from Bighorn Lake were reduced significantly to help alleviate the swollen Bighorn River between Yellowtail Dam and the confluence with the Yellowstone River. Bighorn Lake was allowed to increase until reaching a peak elevation of 3655.03 on July 24.

May 18-26, 2011 Rainfall Totals By County

Below are the preliminary rainfall totals received at the National Weather Service in Billings

NOTES: LOCATION OF REPORTS ARE REFERENCED FROM CITY CENTER

BIG HORN COUNTY	TIME	RAINFALL
LODGE GRASS 9.3 E	9 AM THU	10.90 IN
PRYOR 5.8 SSE	9 AM THU	7.76 IN
WYOLA 24.5 W	9 AM THU	6.73 IN
FORT SMITH 0.8 NW	8 AM THU	6.56 IN
LODGE GRASS 4.5 N	7 AM THU	5.80 IN
CROW AGENCY 2.2 SSE	8 AM THU	5.62 IN
LAME DEER 7.9 WSW	8 AM WED	4.44 IN
HARDIN 6.7 N	6 AM THU	4.28 IN
HARDIN 0.2 ENE	4 PM WED	4.00 IN
HARDIN 0.6 ENE	6 AM THU	3.95 IN
HARDIN 0.4 SW	8 AM THU	3.26 IN

CARBON COUNTY	TIME	RAINFALL
COLE CREEK SNOT	1 AM THU	7.40 IN
RED LODGE 2.0 W	5 PM WED	7.27 IN
RED LODGE 8.4 W	8 AM THU	6.42 IN
RED LODGE 1.2 S	7 AM THU	6.17 IN
RED LODGE 4 N	7 AM THU	5.76 IN
ROBERTS 5.9 NNW	7 AM THU	5.43 IN
BURNT MOUNTAIN SNOT	1 AM THU	5.40 IN
EDGAR 0.2 NNW	12 AM WED	5.39 IN
JOLIET 2.2 WSW	7 AM THU	5.23 IN
RED LODGE 2.3 NE	12 PM THU	5.22 IN
WARREN 18.0 ENE	8 AM THU	4.83 IN
BRIDGER 4.0 SSW	12 AM WED	4.50 IN
BRIDGER 2.3 N	7 AM WED	4.08 IN
BELFRY 4.4 NE	8 AM THU	3.19 IN
WARREN 21.7 E	8 AM WED	2.21 IN

CARTER COUNTY	TIME	RAINFALL
RIDGE 3.8 NE	7 AM THU	7.22 IN
EKALAKA 0.2 ENE	4 PM TUE	6.54 IN
ALZADA 14.2 W	9 AM SUN	6.00 IN
RIDGEWAY 3.5 NNE	9 AM SUN	5.50 IN
RIDGWAY 2.7 ENE	1 PM WED	5.27 IN
ALZADA 20.7 NW	8 AM TUE	4.17 IN

CUSTER COUNTY	TIME	RAINFALL
VOLBORG	12 PM WED	6.85 IN
MILES CITY 8.7 E	7 AM THU	6.55 IN
MILES CITY 0.3 SSE	1 AM MON	6.32 IN
MILES CITY 19.5 NW	8 PM SUN	6.05 IN
ISMAY 3.4 NE	12 AM SUN	5.13 IN
MIZPAH 17.0 SW	6 AM MON	5.00 IN
MILES CITY 0.3 NW	8 AM WED	4.98 IN
VOLBORG 31.2 E	6 PM TUE	4.89 IN
ISMAY 27.6 WSW	7 AM WED	4.80 IN
KNOWLTON 3.7 SE	8 AM WED	4.59 IN
MIZPAH 3.1 NNW	12 PM WED	4.57 IN
MILES CITY 2.6 WNW	11 PM WED	4.43 IN

FALLON COUNTY	TIME	RAINFALL
WEBSTER 6.9 ESE	7 AM WED	5.04 IN
PLEVNA 0.4 SSW	7 AM WED	4.78 IN
PLEVNA 0.2 NNE	6 PM WED	4.24 IN
BAKER 0.2 SSW	8 AM WED	3.50 IN
BAKER 12.9 NE	8 AM WED	3.35 IN

GOLDEN VALLEY COUNTY	TIME	RAINFALL
RYEGATE 9.7 SW	7 AM WED	7.41 IN
RYEGATE 5.4 S	6 AM WED	5.15 IN
RYEGATE 0.3 E	7 AM THU	4.98 IN
RYEGATE 0.1 NNE	5 PM WED	4.70 IN
RYEGATE 16.8 NNW	7 AM THU	3.59 IN
LAVINA 5.8 SSE	11 AM TUE	2.50 IN

MUSSELSHELL COUNTY	TIME	RAINFALL
ROUNDUP 8.1 SE	6 AM THU	6.80 IN
ROUNDUP 8.8 S	7 AM THU	6.58 IN
LAVINA 9.5 ESE	10 AM MON	5.50 IN
ROUNDUP 15.5 SW	10 AM WED	5.35 IN
KLEIN 0.6 S	7 AM THU	4.96 IN
ROUNDUP 12.7 SW	7 AM THU	4.37 IN
ROUNDUP 4.3 SSE	9 AM THU	4.00 IN
MELSTONE 0.1 NE	7 AM WED	3.96 IN
ROUNDUP 0.5 S	5 PM WED	3.75 IN
ROUNDUP 6.5 WSW	3 PM WED	3.73 IN
ROUNDUP 6.2 ENE	7 AM THU	3.54 IN
ROUNDUP 8.6 NNE	6 AM WED	3.25 IN
ROUNDUP 10.9 NNE	7 AM WED	2.98 IN

PARK COUNTY	TIME	RAINFALL
MCLEOD 12.8 SW	7 AM WED	5.37 IN
LIVINGSTON 6.6 ESE	7 AM THU	4.76 IN
SOUTH FORK SHIELDS SNOT	1 AM THU	3.80 IN
LIVINGSTON 5.8 ENE	8 AM THU	3.50 IN
CLYDE PARK 12.8 ESE	12 AM WED	3.30 IN
PORCUPINE SNOT	1 AM WED	3.00 IN
LIVINGSTON 2.3 SSW	5 AM THU	2.75 IN
LIVINGSTON 0.4 SSW	6 AM THU	2.73 IN
MONUMENT PEAK SNOT	1 AM THU	2.40 IN
BOX CANYON SNOT	1 AM THU	2.20 IN
FISHER CREEK SNOT	1 AM WED	2.00 IN
CHICO HOT SPRINGS 17.1 ES	6 AM WED	1.98 IN
GARDINER 0.1 E	6 PM WED	1.39 IN
WHITE MILL SNOT	1 AM THU	1.20 IN
COOKE CITY 1.0 W	6 PM WED	1.18 IN
WILSALL 0.3 NW	7 AM WED	1.02 IN

POWDER RIVER COUNTY	TIME	RAINFALL
ASHLAND 11.9 E	7 AM WED	6.61 IN
BROADUS 18.8 NNW	7 PM WED	6.47 IN
ASHLAND 9.7 ESE	6 AM WED	6.34 IN
BROADUS 9.8 W	7 AM WED	5.55 IN
MOORHEAD 3.8 WSW	8 AM THU	4.65 IN
BROADUS 0.1 ENE	5 PM WED	4.62 IN
BIDDLE 8.2 WSW	6 PM TUE	4.53 IN
BOYES 1.7 NNE	7 AM THU	4.36 IN
BROADUS 12.3 SSE	7 AM THU	4.31 IN
OTTER 6.7 NNE	8 AM THU	3.86 IN
BROADUS 12.6 SW	7 AM TUE	3.79 IN
MOORHEAD 9.5 NE	6 PM WED	3.34 IN

ROSEBUD COUNTY	TIME	RAINFALL
LAME DEER 8.1 ENE	9 AM THU	6.58 IN
LAME DEER 3.9 SE	9 AM WED	6.03 IN
COLSTRIP 1.0 N	8 AM THU	5.96 IN
LAME DEER 0.3 NNW	8 AM THU	5.22 IN
FORSYTH 1.5 ENE	7 AM WED	4.85 IN
FORSYTH 0.4 NNE	4 AM TUE	4.41 IN
MELSTONE 5.7 E	8 AM THU	3.58 IN
SUMATRA 11.3 WSW	7 AM THU	3.36 IN

STILLWATER COUNTY	TIME	RAINFALL
ABSAROKEE 0.6 S	8 AM THU	6.71 IN
ABSAROKEE 0.1 ENE	7 AM THU	6.33 IN
FISHTAIL 3.1 W	8 AM WED	5.68 IN
NYE 0.1 SE	1 PM WED	5.45 IN
NYE 6.5 NW	9 AM WED	5.31 IN
COLUMBUS 7.5 E	7 AM THU	5.03 IN
REED POINT 5 SE	6 AM THU	4.94 IN
COLUMBUS 7.2 E	7 AM THU	4.74 IN
MCLEOD 23.2 SSW	3 PM WED	4.38 IN
RAPELJE 0.8 S	6 PM WED	4.29 IN
COLUMBUS 3.2 WSW	5 AM THU	4.00 IN
COLUMBUS 4.8 NNW	8 AM THU	3.50 IN
COLUMBUS 0.9 NW	6 PM WED	3.43 IN
PARK CITY 0.5 S	7 AM WED	3.11 IN
FISHTAIL 18.1 SW	4 PM WED	2.75 IN

SWEET GRASS COUNTY	TIME	RAINFALL
GREYCLIFF 12.8 SSW	4 PM WED	7.04 IN
EAST BOULDER MINE SNOT	1 AM THU	6.60 IN
MCLEOD 0.1 NW	8 AM WED	6.42 IN
PLACER BASIN SNOT	1 AM THU	6.40 IN
BIG TIMBER 0.3 ESE	7 AM THU	4.83 IN
BIG TIMBER 0.5 E	8 AM THU	4.77 IN
MCLEOD 19.6 SSW	8 AM WED	3.89 IN
BIG TIMBER 11.5 S	7 AM TUE	3.47 IN
REED POINT 8.6 WSW	7 AM TUE	3.09 IN

TREASURE COUNTY	TIME	RAINFALL
HYSHAM 25.0 SSE	2 PM WED	5.18 IN
HYSHAM 4.4 ESE	7 AM MON	5.16 IN
HYSHAM 0.2 NNW	5 PM WED	4.44 IN
HYSHAM 8.0 W	7 AM THU	3.80 IN
HYSHAM 0.4 ESE	7 AM WED	3.67 IN

WHEATLAND COUNTY	TIME	RAINFALL
TWODOT 6.5 S	10 AM WED	5.38 IN
HARLOWTON 1.7 ENE	3 PM WED	3.83 IN
JUDITH GAP 13.1 E	7 AM THU	3.19 IN

YELLOWSTONE COUNTY	TIME	RAINFALL
BILLINGS HEIGHTS 2.2 NNE	6 AM THU	6.93 IN
LOCKWOOD 6.0 S	3 PM THU	6.22 IN
BILLINGS 9.5 ENE	7 AM THU	6.02 IN
POMPEYS PILLAR 19.8 NNW	3 PM WED	5.84 IN
BILLINGS AIRPORT 2.6 NW	11 PM WED	5.68 IN
BILLINGS 1.0 NW	8 AM THU	5.61 IN
BILLINGS HEIGHTS 5.3 NE	7 AM THU	4.78 IN
BILLINGS 7.1 W	7 AM THU	4.70 IN
BILLINGS HEIGHTS 4.5 NE	8 AM THU	4.70 IN
BALLANTINE 0.1 ENE	6 AM WED	4.69 IN
BILLINGS SOUTHSIDE 1.4 SE	3 PM WED	4.57 IN
BILLINGS BRIARWOOD 5.1 S	7 AM THU	4.28 IN
POMPEYS PILLAR 15.9 NNW	7 AM WED	4.27 IN
HUNTLEY 3.6 ENE	8 AM WED	4.08 IN
BILLINGS SOUTHWEST 3.9 S\	11 PM WED	3.93 IN
BILLINGS 7.4 SW	8 AM THU	3.40 IN

SHERIDAN COUNTY WYO	TIME	RAINFALL
PARKMAN 8.6 W	7 AM THU	7.61 IN
TIE CREEK SNOT	1 AM THU	6.80 IN
SUCKER CREEK SNOT	1 AM THU	6.60 IN
STORY 0.6 WNW	6 AM THU	6.59 IN
BURGESS JUNCTION 0.3 NNV	5 AM THU	6.32 IN
BURGESS JUNCTION SNOT	1 AM THU	5.80 IN
DAYTON 0.1 W	6 AM WED	5.78 IN
SHERIDAN 1.6 SSE	8 AM WED	5.64 IN
DAYTON 0.2 NNE	7 AM WED	5.43 IN
BIG GOOSE SNOT	1 AM THU	5.40 IN
RANCHESTER 1.3 ESE	7 AM THU	5.25 IN
BIG HORN 0.7 WSW	8 AM THU	5.12 IN
WYARNO 9.5 NNE	7 AM THU	5.02 IN
BIG HORN 0.8 W	8 AM THU	4.86 IN
BANNER 3.5 E	7 AM WED	4.53 IN
SHERIDAN 1.7 NW	8 AM THU	4.51 IN
BURGESS JUNCTION 1.4 NW	9 AM THU	4.36 IN
SHERIDAN 12.9 ESE	7 AM MON	4.20 IN
SHERIDAN 3.4 SSW	7 AM THU	4.11 IN
DOME LAKE SNOT	1 AM THU	4.10 IN
BURGESS JUNCTION 15.1 NV	4 PM THU	4.05 IN
SHERIDAN 1.0 N	7 AM THU	4.02 IN
SHERIDAN 13.8 NNE	7 AM THU	4.02 IN
SHERIDAN 1.1 SSW	8 AM WED	3.56 IN
SHERIDAN 2.2 SSW	11 PM WED	3.45 IN
SHERIDAN 8.1 NNE	8 AM WED	3.43 IN
CLEARMONT 5.1 NNE	7 AM MON	2.51 IN
CLEARMONT 5.4 SW	10 PM WED	2.50 IN

All Reclamation reservoirs in Montana filled to full capacity. Reclamation staff of MTAO operates five reservoirs that have flood storage specifically allocated to them. These reservoirs were used to help reduce flooding along the mainstem of the Missouri River downstream of Fort Peck Reservoir. The Corps of Engineers had requested that these reservoirs be operated in a manner to utilize as much of their exclusive flood control spaces as possible to help reduce flooding along the mainstem. These reservoirs included Tiber Reservoir on the Marias River near Chester; Clark Canyon Reservoir on the Beaverhead River near Dillon; Canyon Ferry Reservoir on the Missouri River near Helena; Bighorn Lake on the Bighorn River near Fort Smith; and Fresno Reservoir on the Milk River near Havre. The Corps of Engineers was requesting Reclamation to utilize about 90-95 percent of the exclusive flood pools to help control the downstream flooding. Lake Elwell reached its highest elevation of record at 3011.42 on July 19, to help control the inflows entering Fort Peck Reservoir.

During June and July, storage was above average at all of Reclamation's Projects. By the end of August, all of the reservoirs varied between 104 and 157 percent of average. Water year 2011 ended with varying storage levels. Gibson Reservoir was at 43 percent of average while Lake Sherburne was 258 percent of average. The Reclamation reservoir with the least amount of carryover storage was Gibson Reservoir at 17 percent of full capacity. Clark Canyon Reservoir near Dillon was able to have another successful year, finishing the year at 117 percent of average.

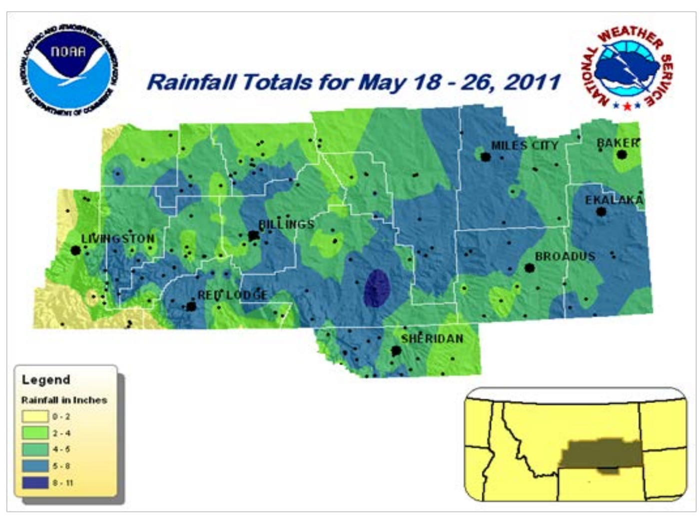
Unusually large releases were required through the spillways at Tiber Reservoir, Gibson Reservoir, Fresno Reservoir, Canyon Ferry Reservoir, and Bighorn Lake to control the large snowmelt during the spring runoff. This was due largely to the delayed snowmelt and the late spring storms that delivered undesirable amounts of precipitation.

The runoff pattern allowed all Reclamation facilities to maintain flows at or above the desired fishery flows through the remainder of the water year. Entering water year 2012, releases from all Reclamation facilities in Montana were maintained near or above the recommended fishery flow.

There was approximately $48,504,000 in flood damages prevented during water year 2011 by Reclamation facilities in Montana east of the Continental Divide. The total flood damage prevented by these facilities since 1950 is approximately $502,295,200.

Water Supply and Runoff

The water supply forecasts prepared on January 1, indicated April-July runoff volumes ranged from 69 to 108 percent of average among Reclamation reservoirs east of the Continental Divide, MTT3. All basins, except the Marias and Milk River Basin, showed little improvements in the snowpack levels during January and February, and by March 1, the forecasts ranged from 86 to 158 percent of average. The April 1 snowpack ranged from 103 percent of average in the Wind River Basin to 180 percent of average in the Milk River Basin, Table MTT2.



The resulting April-July forecasted runoff volumes ranged from 107 percent of average into both Clark Canyon and Canyon Ferry Reservoirs to 163 percent of average into Fresno Reservoir. In the end, due to spring precipitation and improved April snowfall, the actual April-July runoff volumes for water year 2011 ranged from 129 percent of average into Sherburne Reservoir to 231 percent of average into Yellowtail Reservoir, Table MTT3. All water users experienced full water supplies during water year 2011.

During record water year 2011 the peak release at Clark Canyon was approximately 387 cfs less than peak inflow. Peak release was 1,051 cfs on August 3, while the inflow peaked at 1,438 cfs on June 20, which was above average. Canyon Ferry's peak inflow was 32,539 cfs on June 15, while the peak release was 23,366 cfs on July 3. In the Sun River Basin, Gibson Reservoir inflow peaked at 10,398 cfs on June 8, while the release peaked at 10,571 cfs on June 8. The peak inflow for Pishkun and Willow Creek Reservoirs were 1,405 cfs on August 9 and 475 cfs on June 9, respectively. Inflow to Lake Elwell peaked at 19,012 cfs on June 10 and releases peaked at 2,843 cfs on August 23. In the Milk River Basin, Lake Sherburne peak inflow was 1,404 cfs on June 30 and releases peaked at 766 cfs on July 10. The peak inflow for Fresno Reservoir was 3,823 cfs on June 11 while the release peaked at 3,293 cfs on June 13. Peak inflow at Nelson Reservoir was 419 cfs on June 11 while the release peaked at 400 cfs on May 27. In the Bighorn River Basin, Bighorn Lake peak inflow was 20,353 cfs on June 27 and the peak release was 15,461 cfs on June 15. Inflows to Reclamation facilities in Montana east of the Continental Divide ranged from 126 percent of average at Sherburne Reservoir to 174 percent of average at Fresno Reservoir for 2011.

TABLE MTT2
2011 MOUNTAIN SNOW WATER CONTENT
AS A PERCENT OF NORMAL

DRAINAGE BASIN	JAN 1	FEB 1	MAR 1	APR 1	MAY 1
Beaverhead	120	116	107	113	139
Jefferson	110	107	104	110	137
Madison	121	109	103	113	145
Gallatin	116	113	112	116	143
Missouri Headwaters above Toston	115	114	106	113	143
Sun	105	108	120	132	188
Marias	84	89	93	105	150
Milk River	134	233	217	180	334
St. Mary	94	108	111	123	142
Wind	121	100	99	103	132
Shoshone	110	104	98	105	130
Bighorn (Boysen-Bighorn)	102	119	113	116	155

TABLE MTT3
2011 WATER SUPPLY FORECASTS

RESERVOIR	JAN 1 1/		FEB 1 1/		MAR 1 1/		APR 1 2/		MAY 1 3/		JUN 1 4/		ACTUAL APRIL-JULY 5/		% OF APRIL FORE-CAST REC'D
	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	
Clark Canyon	113.6	101	108.0	96	97.0	86	120.9	107	127.0	140	76.0	119	158.7	141	131
Canyon Ferry	2,098.0	103	1,978.0	98	1,949.0	96	2,170.0	107	2,168.0	129	1,744.0	157	3,459.6	171	159
Gibson	397.5	83	406.5	85	520.0	109	546.0	114	616.0	141	423.0	158	692.6	145	127
Tiber	333.0	69	424.0	87	440.0	91	451.0	112	583.0	138	393.0	155	759.9	182	168
Sherburne	101.0	97	107.0	103	112.0	108	118.0	113	130.0	137	91.0	145	134.8	129	114
Fresno	90.0	108	102.0	122	132.0	158	99.0	163	101.0	242	37.0	190	xxx.3	102	216
Yellowtail	1,127.6	101	1,160.8	104	1,204.3	108	1,400.0	126	1,660.0	175	1,800.0	256	2,572.3	231	184

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

FLOOD BENEFITS

The Corps evaluated the reservoir regulation data pertaining to Reclamation reservoirs within the jurisdiction of the MTAO and indicated that six reservoirs provided flood relief during water year 2011. They were: Clark Canyon Reservoir on the Beaverhead River near Dillon; Canyon Ferry Reservoir on the Missouri River near Helena; Lake Elwell on the Marias River near Chester; Fresno Reservoir on the Milk River near Havre; Gibson Reservoir on the Sun River near Augusta; and Bighorn Lake on the Bighorn River near Fort Smith. Canyon Ferry Reservoir, Lake Elwell, and Bighorn Lake played the most important role in preventing flood damages during the 2011 runoff season. The most notable examples of peak flows regulated by Reclamation reservoirs during the spring runoff are as follows:

Reservoir	Peak Inflow (cfs)	River Discharge (cfs)	Date
Clark Canyon	1,438	290	06/20/11
Canyon Ferry	32,539	13,985	06/15/11
Lake Elwell	19,012	973	06/10/11
Fresno Reservoir	3,823	2,685	06/11/11
Bighorn Lake	20,353	13,958	06/27/11

The Corps estimated the operations of Reclamation reservoirs in Montana during 2011 reduced flood damages by $48,504,000. 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 flood damages prevented is as listed in Table MTT4. For additional information on the operations of the reservoirs within the jurisdiction of the MTAO, refer to the individual "Summary of Operations for 2011" for each reservoir in this report. Figure MTG2 shows the annual flood damages prevented by MTAO reservoirs since 1950.

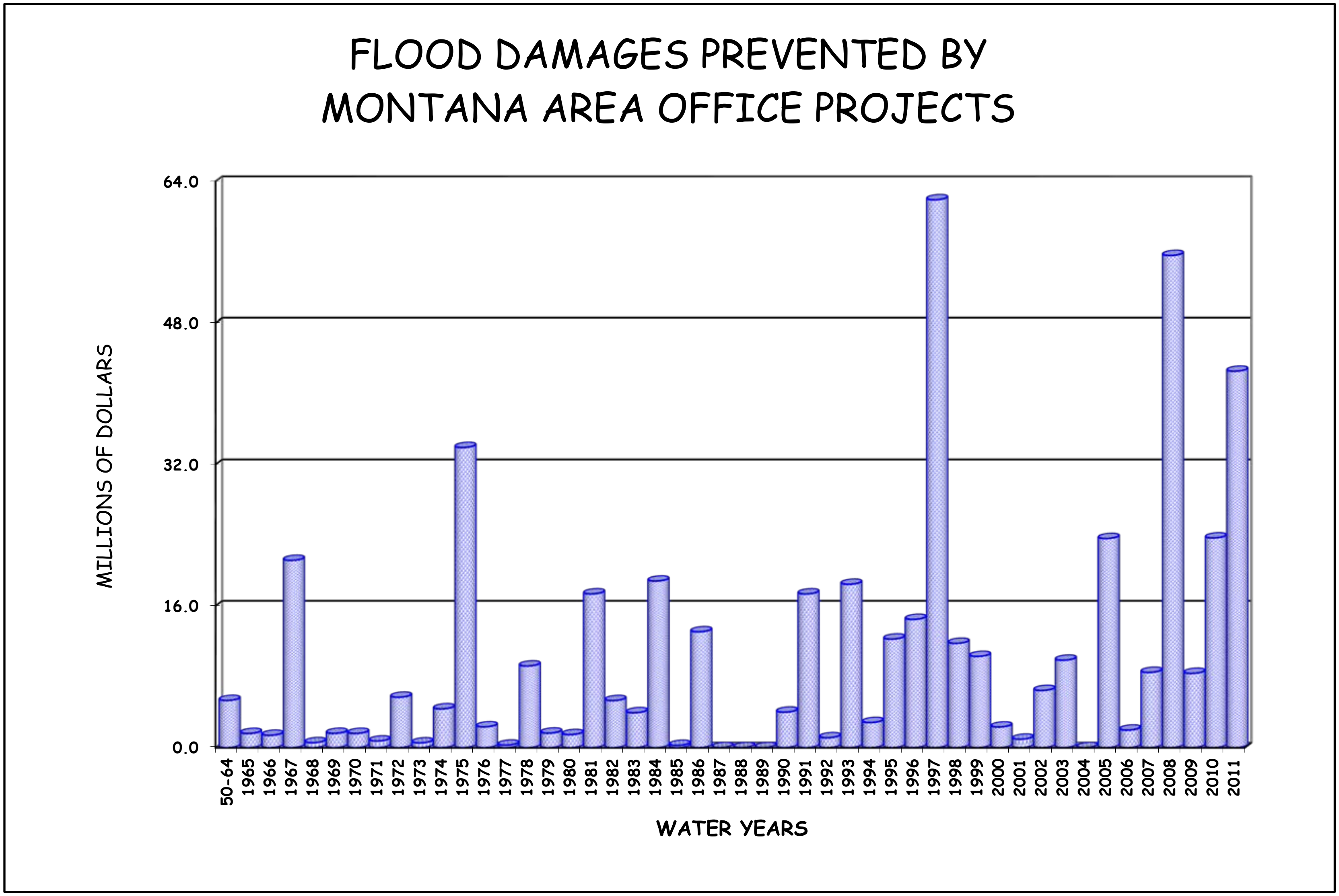
TABLE MTT4
FLOOD DAMAGES PREVENTED
(THOUSANDS OF DOLLARS)

Reservoir	Local	Main Stem	2011 Total	Prev. Accum.	1950-2011 Accum. Total
Clark Canyon	$ 880.7	$ 683.8	$ 1,564.5	$ 14,431.4	$ 15,995.9
Canyon Ferry	7,155.1	8,312.1	15,467.2	195,601.6	211,068.8
Gibson[1]	9.0	0.0	9.0	3,066.1	3,075.1
Lake Elwell	134.9	12,720.4	12,855.3	78,605.7	91,461.0
Lake Sherburne[2]	0.0	0.0	0.0	7,964.5	7,946.5
Fresno	476.2	0.0	476.2	14,245.5	14,721.7
Bighorn Lake	2,035.6	10,143.0	12,178.6	139,894.4	152,073.0
Total	$10,691.5	$ 31,859.3	$ 42,550.8	$453,791.2	$496,342.0

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

2 Now includes historical flood damages prevented by Lake Sherburne since 1950 based on estimates provided by the Corps of Engineers.

FIGURE MTG2



FLOOD DAMAGES PREVENTED BY
MONTANA AREA OFFICE PROJECTS
MILLIONS OF DOLLARS
64.0
48.0
32.0
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0.0
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1965
1966
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WATER YEARS

UNIT OPERATIONAL SUMMARIES FOR WATER YEAR 2011

CLARK CANYON RESERVOIR

Clark Canyon Reservoir, a Pick-Sloan Missouri River 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.

Entering water year 2011, the hydrologic conditions in the Beaverhead River Basin trended near average conditions. Valley precipitation during August and September was 109 and 93 percent of average, respectively, while the mountain precipitation varied from 89 and 76 percent of average, respectively. During the fall, the continued higher percentage precipitation levels helped to drive the inflows to the reservoir into the normal to above normal range. Inflows to Clark Canyon Reservoir during August and September were 110 and 100 percent of average, respectively. Full allotments during water year 2010 did not have a huge affect on reservoir storage and as a result winter releases were set above fishery goals for the first time in ten years. Following the conclusion of the irrigation season, releases from Clark Canyon Reservoir were gradually reduced during October to the fall flow of 215 cfs. However, as the winter progressed, streamflows remained high and it was noted that when the river cleared of icing problems, releases would need to be increased. In September, storage in Clark Canyon Reservoir was held stable with higher releases which caused the reservoir to end 2010 with a content of 142,912 acre-feet at elevation 5539.78. This was 116 percent of average, 3,185 acre-feet or 0.67 feet higher than at the end of water year 2009, this was the desired drawdown level based on balancing winter releases with the flood control target. The timely fall precipitation throughout the basin throughout the fall was a key factor in achieving this many operational goals.

The 2011 water year began with some scattered storm activity, resulting in October valley precipitation falling to below average levels while the mountain precipitation was above average. The valley and mountain precipitation during October was 33 and 111 percent of average, respectively. Precipitation patterns improved during November as the valley precipitation increased to 193 percent of average and the mountain precipitation increased to 123 percent of average. By the end of December, the valley precipitation had reached a year to date average of 121 percent while the mountain precipitation had reached a year to date average of 106 percent.

On January 1, the NRCS measured snowpack in the Beaverhead River Basin at 120 percent of average. This was an increase of 48 percent from the snowpack experienced on January 1, 2010. Snow fell in the Beaverhead River Basin at slightly above average rates and by February 1, the snowpack was measured at 116 percent of average. This was a 37 percent increase from the snowpack measured on February 1, 2010. Precipitation conditions dropped to normal rates during February and on March 1 the measured snowpack in the Beaverhead River Basin had dropped to 107 percent of average. Things were still looking fairly positive through March, as the year to date valley precipitation was above average at 102 percent of normal while the mountain precipitation was also above average at 104 percent of average, leaving us with optimistic conclusions on what was to come. Inflow for October through March was 105,655 acre-feet, or 101 percent of normal. This was 10,498 acre-feet or 11 percent more than the inflows experienced during that period in 2010.

On April 1, the NRCS measured the mountain snowpack to be 113 percent of average. The precipitation continued to fall at near average to above average rates in the Beaverhead valley during April. April valley and mountain precipitation was 91 and 121 percent of average, respectively, contributing to the cumulative valley precipitation being 99 percent of average by the beginning of May. The mountain snowmelt in the Beaverhead River Basin normally begins in late April or early May. On May 1, the snowpack peaked at 20.06 inches of snow water equivalent, 139 percent of average.

Precipitation during the month of May was again above average in both the valley and the mountains. Precipitation in the valley was 139 percent of average while precipitation in the mountains was 133 percent of average. Cumulative valley precipitation through May was 113 percent of average while the mountain cumulative precipitation was 111 percent of average. The inflows to Clark Canyon Reservoir during May totaled approximately 30,000 acre-feet which is only 112 percent of average. This can be attributed to the very cool temperatures that would not allow the snowpack to start melting in April.

Based on the mountain snowpack, the water supply forecast prepared on April 1, indicated the April-July runoff into Clark Canyon Reservoir would be 107 percent of normal, totaling approximately 120,000 acre-feet. This was an increase of 81,000 acre-feet from the April 1 forecast in 2010. Conference calls were held with the Clark Canyon Joint Board in both March and April to discuss the water supply outlook for the 2011 irrigation season. Based on the good carryover storage and the above normal runoff projections, the Joint Board consisting of three representatives from each water user entity, set initial allotments in March for full allotments of 4.0 acre-feet per acre for Clark Canyon Water Supply Company (CCWSC) and 3.1 acre-feet per acre for East Bench Irrigation District (EBID).

In July, the water users in the Beaverhead River Basin met once again and agreed to increase the water allotments by 1 acre-foot to 5.0 acre-feet per acre for CCWSC and 4.1 acre-feet per acre for EBID. By August it was apparent that above normal inflows would be needed through the upcoming winter to provide good fall irrigation and carry over as much water as possible for the following irrigation season. Snowmelt runoff during April through July was above normal at 142 percent of average. Daily inflows into Clark Canyon Reservoir averaged 353 cfs during April, 488 cfs during May, 1,113 cfs during June and 675 cfs during July. These resulted in respective monthly total inflows of 21,000 acre-feet, 30,000 acre-feet, 66,200 acre-feet and 41,500 acre-feet.

The April-July inflow was 142 percent of average totaling 158,700 acre-feet and was 64,300 acre-feet greater than what was experienced in 2010.

Releases during this time averaged 300 cfs during April, 368 cfs during May, 339 cfs during June and 701 cfs during July. As a result, storage slowly increased to a peak for the year of 227,979 acre-feet at elevation 5556.00 on July 18. This was 145 percent of normal and 130 percent of full capacity. This was also 44,000 acre-feet or 8.07 feet higher than the peak storage which occurred in 2010. Releases were not increased until July 18 when flooding conditions on and below the main stem reservoirs through the Dakotas had started to recede. Beginning on May 22, the operations of the reservoir were altered to maintain minimum flows through Dillon of 300 cfs to meet downstream demands. The peak inflow for the year was recorded on June 20 at 1,438 cfs. The total April-July inflow to Clark Canyon Reservoir was 142 percent of average totaling 158,746 acre-feet, the highest runoff total since 1998, and was the 12 highest April-July inflow recorded.

Precipitation in both the valley and mountain areas began to diminish as the summer continued. The valley precipitation during June, July, and August, was 123, 61, and 77 percent of average respectively. The mountain precipitation was 139, 65 and 54 percent of average for June, July, and August, respectively. During September, valley and mountain precipitation declined to 36 and 78 percent of average respectively.

By the end of September, the total cumulative valley precipitation for the year was 98 percent of average while the total cumulative mountain precipitation for the Beaverhead Basin was 106 percent of average. Due to frequent showers and cooler than average temperatures in the basin, storage demands out of Clark Canyon Reservoir were less than average causing the releases to remain high throughout the fall due to the large amount of storage that was captured in the flood pool to aid in relieving high river levels on the Missouri River. Storage in Clark Canyon Reservoir remained high throughout the summer, and finished the water year at a level higher than it has seen since 1975. As irrigation demands decreased, releases out of Clark Canyon Reservoir were maintained at higher than average rates in an attempt to prevent the reservoir from increasing too soon. Irrigators were also able to take advantage of the higher releases and were able to do more late season irrigation which in turn would help maintain higher water tables going into water year 2012. Fall and winter releases were anticipated to be maintained between 250 and 300 cfs.

The majority of the storage water released from Clark Canyon Reservoir during water year 2011 to meet the downstream irrigation demands was released during the period from May 1 through September 30. During this time, releases reached a peak for the year of 1,051 cfs on August 3 to satisfy the downstream water needs, and to evacuate the flood pool before the end of the irrigation season. Beginning in mid July, storage in Clark Canyon Reservoir declined from a peak of 227,979 acre-feet at elevation 5556.00 on July 18 to 155,431 acre-feet at elevation 5542.35 on September 30. This was an unprecedented change from what had been experienced in the drought years of the 2000's. During September, releases averaged 875 cfs out of Clark Canyon Reservoir to try to bring the reservoir down to levels that could help capture the runoff for next year. The Joint Board was able to decide that winter releases would be able to be maintained at or above the desired levels that Montana Fish, Wildlife and Parks (FWP) desires with a flow no less than 250 cfs. The desired levels are between 100-200 cfs.

EBID water users received approximately 78,410 acre-feet and CCWSC received approximately 99,364 acre-feet during water year 2011. Even though irrigation diversions to the East Bench Canal continued into October, the river commissioner appointed by the water court still ended the 2011 irrigation season in September. The total diversion recorded by the river commissioner for the "non-signer" users on the Beaverhead River was approximately 36,312 acre-feet. The total annual inflow to Clark Canyon Reservoir during 2011 was 123 percent of average, totaling 314,648 acre-feet.

By comparison, this was 84,000 acre-feet more than the total annual inflow of water year 2010. The total annual release to the Beaverhead River from Clark Canyon Reservoir was 302,129 acre-feet or 119 percent of normal. This release was high due to the higher releases coming out of the good water year of 2010, and then higher releases through the runoff season as the reservoir was being evacuated out of the flood pool. This pattern allowed the reservoir to remain essentially full and provide good carryover going into water year 2012 as well as a desired winter release pattern.

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 was able to fill to the top of the conservation pool in water year 2011 and peaked at 82,034 acre-feet, which was 96 percent of full capacity on June 19. 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 1,178 cfs on August 6 due to irrigation releases from storage, but the streamflow would have peaked at 2,145 cfs on June 10 if Clark Canyon Reservoir would not have been controlling the runoff.

The Corps determined that during 2011, Clark Canyon Reservoir prevented $880,700 in local flood damages and also prevented $73,600 in flood damages on the Missouri River below Fort Peck Reservoir for a total of $954,300. Since construction of the Clark Canyon Dam in 1965, Clark Canyon Reservoir has reduced flood damages by a total of $15,385,700.

Important Events in Water Year 2011

October 1, 2010: Clark Canyon Reservoir enters the water year with 142,912 acre-feet of storage at elevation 5539.78.

October 12, 2010: Clark Canyon Reservoir reached its lowest level of the water year with 140,959 acre-feet of storage at elevation 5539.37.

October 20, 2010: Following the 2010 irrigation season, releases from Clark Canyon Reservoir to the Beaverhead River were reduced to approximately 215 cfs maintain pool levels at the desired level to meet the flood control target for the next spring.

January 19, 2011: Releases were increased to 235 cfs to evacuate more storage after receiving the latest forecasts based on the low snowpack.

January 25, 2011: Releases were increased to 255 cfs to evacuate storage after receiving the latest forecasts based on the low snowpack.

April 11, 2010: This marked the beginning of when releases from Clark Canyon Reservoir were increased to control the rate of fill in the reservoir.

May 21, 2011: This marked the time when the Corps of Engineers requested releases from Reclamation projects be reduced and the reservoirs allocated flood control storage to utilize as much of this storage space as possible to help control flooding along the mainstem of the Missouri River downstream of Fort Peck Dam.

May 25, 2011: Releases were being reduced as tributary flows increased to try to maintain flows below Barretts at about 300 cfs.

June 05, 2011: Clark Canyon Reservoir entered the flood pool.

June 20, 2011: Inflow to Clark Canyon Reservoir reached a peak for the year at 1,438 cfs.

July 18, 2011: Clark Canyon Reservoir reached a peak storage content of 227,979 acre-feet at elevation 5556.0. This was 130 percent of full capacity and 53,718 acre-feet or 9.9 feet above the top of the joint-use pool.

August 03, 2011: Releases from Clark Canyon Reservoir reached a peak of 1051 cfs to meet downstream water demands from the Beaverhead River, as well as to continue evacuating the flood pool.

September 9, 2011: Clark Canyon Reservoir drafted to a level below the top of the joint use pool.

September 30, 2011: Clark Canyon Reservoir ends the water year with 155,431 acre-feet of storage at elevation 5542.35.

October 15, 2011: East Bench Irrigation District discontinues diversions to the Canal.

Additional hydrologic and statistical information pertaining to the operation of Clark Canyon Reservoir during water year 2011 can be found in Table MTT5 and Figure MTG3.

Table MTT5:
Hydrologic Data for Water Year 2011
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

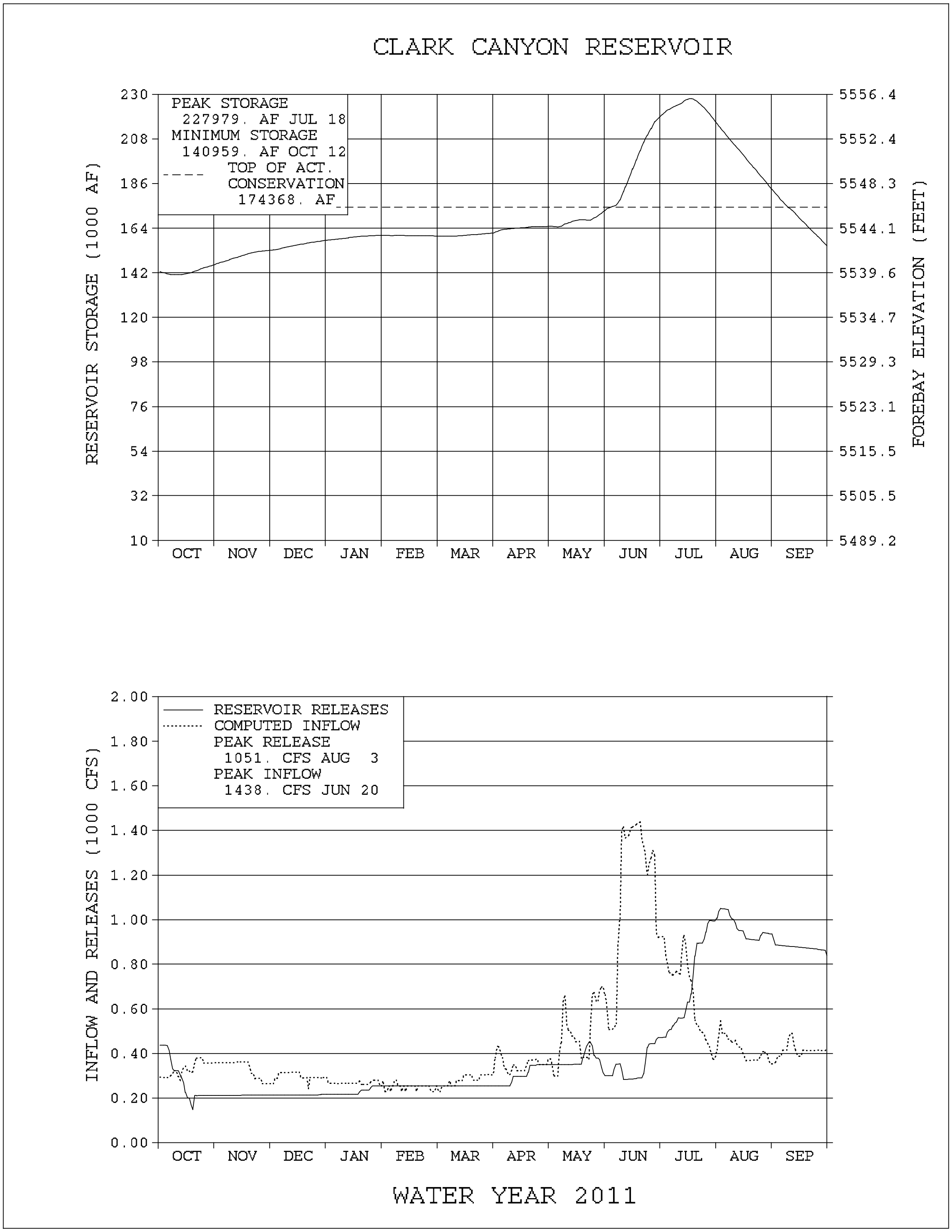
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	5539.78	142,912	OCT 01, 2010
END OF YEAR	5542.35	155,431	SEP 30, 2011
ANNUAL LOW	5539.37	140,959	OCT 12, 2010
ANNUAL HIGH	5556.00	227,979	JUL 18, 2011
HISTORIC HIGH	5564.70	283,073	JUN 25, 1984

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	314,648	OCT 10-SEP 11	302,129	OCT 10-SEP 11
DAILY PEAK (CFS)	1,438	JUNE 20, 2011	1,051	AUG 03, 2011
DAILY MINIMUM (CFS)	229	FEB 02, 2011	149	OCT 19, 2010
DAILY FLOW AT BARRETTS (CFS)			1,170	AUG 06, 2011
DAILY FLOW AT BARRETTS W/O CLARK CANYON RESERVOIR (CFS)			1,280	JUL 02, 2011
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	20.3	91	17.1	120	146.1	116
NOVEMBER	19.7	93	12.7	96	153.1	115
DECEMBER	18.2	104	13.2	105	158.1	116
JANUARY	16.4	110	14.1	134	160.5	115
FEBRUARY	13.8	104	14.1	150	160.1	113
MARCH	17.2	99	15.7	155	161.7	109
APRIL	21.0	103	17.9	143	164.8	104
MAY	30.0	112	22.6	81	172.2	103
JUNE	66.2	188	20.2	52	218.2	131
JULY	41.5	154	43.1	94	216.6	144
AUGUST	25.7	133	59.3	154	183.0	143
SEPTEMBER	24.5	125	52.1	250	155.4	125
ANNUAL	314.6	123	302.1	119		
APRIL-JULY	158.7	142				

* Average for the 1965-2011 period.

Figure MTG3:
Clark Canyon Reservoir



CANYON FERRY LAKE and POWERPLANT

Canyon Ferry 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 are 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 28,000 acres on the East Bench Unit (P-S MBP). In addition, about 5,200 acres in the Helena Valley Unit that was once irrigated by pumping from Lake Helena and from other streams are now irrigated by pumping from Canyon Ferry Reservoir. About 33,700 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 were 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.

During September, precipitation in the Missouri River Basin above Canyon Ferry Lake was slightly below average. Valley precipitation was 90 percent of average while the mountain precipitation was only 81 percent of average. With storage in Canyon Ferry Lake at 103 percent of average in early September, releases to the Missouri River were maintained near 4,100 cfs, allowing storage in Canyon Ferry Lake to slowly decline to 1,766,465 acre-feet at elevation 3793.19 by the end of September. This was also 103 percent of average and about 86,850 acre-feet or 2.69 feet higher than at the beginning of water year 2010.

At the beginning of the water year, precipitation in the Missouri River Basin above Canyon Ferry Lake started out a bit slow. The valley precipitation was only about 69 percent of average during October while the mountain precipitation was near normal. By November, weather conditions improved and the accumulated valley precipitation during November through March climbed to 117 percent of average while the accumulated mountain precipitation during this same period improved to 108 percent of average.

With inflows at 84 percent of average during October and November and the releases maintained at over 120 percent of average, storage slowly decreased to 1,729,496 acre-feet at elevation 3792.05 by November 18, about average for this time of year.

Beginning about the middle of November, several storms moved through the Missouri River Basin, dumping large amounts of snow in the basin. Mountain snowpack conditions increased significantly from near average on November 17 to as high as 127 percent of average on November 24. On December 1, NRCS measured the mountain snowpack in the Missouri River Basin at 114 percent of average, about 25 percent higher than in December 2009. During December, snow continued to fall in the mountains at above normal rates. By January 1, the snowpack conditions had increased to 115 percent of average, nearly 40 percent higher than a year ago. Snowpack in the Jefferson, Madison, and Gallatin River Basins, major tributaries of the Missouri River Basin was 110, 121, and 116 percent of average, respectively. With storage near average, releases from Canyon Ferry to the Missouri River were increased to about 5,320 cfs on November 19 and maintained near this rate through February to evacuate storage as planned.

Snow continued to fall in the higher elevations at normal rates during January, February, and early March. On March 1, the NRCS measured the mountain snowpack in the Missouri River Basin at 106 percent of average, about 35 percent high than a year ago. By March 1, storage in Canyon Ferry Lake had been drafted to 1,418,824 acre-feet at elevation 3782.07. With snowpack conditions at 106 percent of average and storage at 94 percent of average, releases were reduced to about 5,100 cfs in early March to continue evacuating storage as planned. At this time, it appeared storage in Canyon Ferry Lake was at a level that would safely accommodate the anticipated spring mountain snowmelt runoff.

Several spring storms frequented the Missouri River Basin in April, dumping large amounts of snow in the mountains. According to the NRCS records, the snow water content of the snowpack rose from 113 percent of average on April 1 to 140 percent of average by May 1. The large increase in snowpack changed plans for Reclamation. In early April, Reclamation began making preparations to evacuate additional storage out of Canyon Ferry Lake to have more storage space available to safely store the anticipated snowmelt runoff into Canyon Ferry. Plans were made to evacuate storage out of Canyon Ferry to near 1,300,000 acre-feet at elevation 3778. Storage in Canyon Ferry Lake was recorded at 1,391,407 acre-feet at elevation 3781.13 on April 1. This was about 96 percent of average and 179,467 acre-feet or 5.94 feet lower than on April 1, 2010.

Temperatures remained cooler than normal in April and May, significantly delaying the beginning of the mountain snowmelt runoff into Canyon Ferry. To continue evacuating storage as planned, releases out of Canyon Ferry were increased from 5,100 cfs in early April to 7,250 cfs by late April. Several spring storms continued into May. By May 1, the snow water content in the mountain snowpack above Canyon Ferry had increased to 24.1 inches, about 7 inches higher than average. This was becoming a greater concern to Reclamation, since no mountain snowmelt runoff was yet occurring into Canyon Ferry.

During May, releases out of Canyon Ferry were further gradually increased to 14,300 cfs by May 19. As a result, storage in Canyon Ferry Lake was drafted to a low content for the year of 1,308,523 acre-feet at elevation 3778.20 on May 21, about 83 percent of average for this time of year. At this time, plans were being made to maintain the reservoir near this level through the end of May if the inflows allowed this to occur.

The water supply forecast prepared in early May, indicated the May-July runoff into Canyon Ferry Lake would be 129 percent of average, totaling 2,168,000 acre-feet. This was about 1,254,400 acre-feet more than a year ago. Beginning about the second week of May, the high elevation snowmelt runoff into Canyon Ferry finally began. Inflows gradually increased from about 6,000 cfs to over 21,100 cfs by May 27. In late May, with releases out of Canyon Ferry being maintained at about 14,300 cfs, the level of Canyon Reservoir began to quickly increase. By June 1, storage in Canyon Ferry Lake had increased to 1,404,195 acre-feet at elevation 3781.57. This was 86 percent of average and 282,792 acre-feet or 9.16 feet lower than the level recorded on May 31, 2010.

By now, the mountain snowmelt runoff into Canyon Ferry Lake was well underway. Heavy precipitation fell in late May and early June fell across much of Montana, accompanying the high elevation snowmelt that was well underway. Heavy rains in the Helena and Great Falls area caused many streamflows to increase considerably. To prevent or minimize downstream flooding along the Missouri River downstream of Holter Dam, releases out of Canyon Ferry to the Missouri River were gradually reduced and briefly maintained at about 11,000-13,000 cfs during May 26-June 13.

With the rains accompanying the mountain snowmelt runoff, inflows into Canyon Ferry quickly increased, reaching a peak for the year of 32,539 cfs on June 15. This was the second highest daily peak inflow ever recorded into Canyon Ferry Lake since construction of the dam in 1954. During late May and early June, Canyon Ferry Lake was quickly filling. By the second week of June, the lake was filling at a rate of over a foot per day. By June 22, storage in Canyon Ferry Lake had reached the top of the joint-use pool and began to enter the exclusive flood pool.

The heavy precipitation across much of Montana was not only restricted to Montana. Record amount of rain was falling across much of Wyoming and into the Dakotas. The large reservoirs on the mainstem of the Missouri River which are owned and operated by the U.S. Army Corps of Engineers (Corps) were also experiencing record inflows and these reservoirs were also quickly filling at alarming rates. Historic high amounts of water were being released from these reservoirs in efforts to control the record runoff entering these reservoirs. However, storage space in these large reservoirs was quickly being depleted. On June 13, the Corps requested Reclamation to use all available flood control storage space at Reclamation's Section 7 Projects to the extent practical and maintain storage in the exclusive flood control zone for as long as possible before evacuating this storage. This included the flood control storage space in Canyon Ferry as well.

As the heavy rains around the Helena and Great Falls area began to diminish in early June, the downstream tributary flows also began to recede. After inflows reached a peak of 32,539 cfs on June 15, they too began to slowly decline, but continued to average near 26,800 cfs during the remainder of June. Runoff into Canyon Ferry during June totaled 1,508,322 acre-feet. This was 207 percent of average and was the second highest June inflow of record into Canyon Ferry. The highest June inflow of record occurred in 1997, totaling 1,574,393 acre-feet.

To control the runoff into Canyon Ferry and the rate of fill of storage in the exclusive flood control pool, releases out of Canyon Ferry were gradually increased from 13,000 cfs beginning on June 15 to the peak for the year of 23,366 cfs on July 3. Finally, on July 3, storage in Canyon Ferry reached peak content for the year of 1,982,092 acre-feet at elevation 3799.68 and remained at this level through July 5 before beginning to recede. About 89 percent of the exclusive flood control space was used in Canyon Ferry Lake to help control the near record high runoff in the Missouri River Basin upstream of Canyon Ferry in 2011.

Canyon Ferry played a major role in providing flood control along the Missouri River during the 2011 runoff. During the peak of the runoff period which occurred near mid-June, this reservoir stored about 64 percent of the total flow in the Missouri River. Without this control, the flow of the Missouri River at Ulm, Montana, would have peaked at 48,070 cfs as compared to the actual peak of 28,600 cfs. Refer to the Exhibit 1A and Exhibit 2A to see how the flow in the Missouri River at Ulm was affected by the regulation of Canyon Ferry Lake during the near record high runoff period.

Once storage in Canyon Ferry Lake had reached its peak level, the inflows into Canyon Ferry continued to recede. Inflows during July had declined from 26,492 cfs on July 1 to as low as 5,088 cfs by July 31. In response, releases out of Canyon Ferry to the Missouri River were also gradually reduced to slow the evacuation rate of flood storage and bring relief to the high flows in the Missouri River downstream of Canyon Ferry Dam. Beginning on July 11, releases out of Canyon Ferry were gradually reduced until all spills were discontinued on July 26, resulting in a total release of 5,800 cfs (5,000 cfs through the powerplant and 800 cfs released for the Helena Valley Project).

In July, the weather conditions changed significantly. Precipitation dropped to well below normal while temperatures returned to near normal. The valley and mountain precipitation declined to only 59 and 68 percent of average, respectively. Even though the precipitation was well below average during July, the residual effects of the delayed snowmelt runoff seemed to maintain the inflow into Canyon Ferry during July at 276 percent of average, totaling 888,116 acre-feet. This was also the second highest July of record experienced into Canyon Ferry and only 35,081 acre-feet lower than the record experienced in 1997.

The April-July runoff into Canyon Ferry Lake during 2011 was 180 percent of average, totaling 3,459,571 acre-feet. This was 1,331,637 acre-feet greater than the April-July inflow experienced in 2010. The annual inflow to Canyon Ferry Lake was 141 percent of average, totaling 5,334,445 acre-feet. This was 1,457,033 acre-feet greater that the total annual inflow experienced in water year 2010.

As a result of the dry conditions during July through September, the inflows into Canyon Ferry slowly dropped to less than normal by September. The inflow into Canyon Ferry Lake dropped from 143 percent of average in August to only 93 percent of average in September.

EXHIBIT 1A

EFFECTS OF CANYON FERRY OPERATIONS

Water Year 2011

Date	Canyon Ferry Operations Inflow	Canyon Ferry Operations Release	Effects	Missouri River Flows at Ulm* With Canyon Ferry	Missouri River Flows at Ulm* Without Canyon Ferry
1-May	5959	7251	-1292	8300	
2-May	5806	7243	-1437	8350	7058
3-May	5569	7860	-2291	8430	6993
4-May	5551	8268	-2717	8720	6429
5-May	5556	8261	-2705	9400	6683
6-May	5987	8257	-2270	9490	6785
7-May	6126	8252	-2126	9630	7360
8-May	6557	8251	-1693	9870	7744
9-May	7789	8636	-847	10400	8707
10-May	9055	9620	-565	12600	11753
11-May	10177	10600	-423	15000	14435
12-May	10058	11603	-1545	15800	15377
13-May	9420	11946	-2525	16600	15055
14-May	9935	11896	-1961	17200	14675
15-May	10621	11880	-1258	18000	16039
16-May	10872	11845	-974	18200	16942
17-May	12815	11841	974	18200	17226
18-May	13371	12812	559	18000	18974
19-May	13679	13958	-279	18100	18659
20-May	12026	14255	-2229	18800	18521
21-May	13657	14214	-558	20000	17771
22-May	14730	14172	558	21700	21142
23-May	15122	14286	836	22500	23058
24-May	14837	14279	558	22900	23736
25-May	19463	14288	5175	23700	24258
26-May	20683	13635	7048	24800	29975
27-May	21103	12564	8539	25000	32048
28-May	20505	12748	7757	23600	32139
29-May	19517	12858	6659	22100	29857
30-May	19070	12950	6120	21400	28059
31-May	18224	13239	4985	22500	28620

Date	Canyon Ferry Operations Inflow	Canyon Ferry Operations Release	Effects	Missouri River Flows at Ulm* With Canyon Ferry	Missouri River Flows at Ulm* Without Canyon Ferry
1-Jun	16404	13462	2943	23700	28685
2-Jun	16509	13558	2951	23600	26543
3-Jun	16874	13617	3257	23300	26251
4-Jun	15761	13680	2081	23500	26757
5-Jun	16082	13702	2380	23600	25681
6-Jun	16714	13730	2984	23300	25680
7-Jun	21318	12914	8404	23200	26184
8-Jun	23924	11493	12431	24400	32804
9-Jun	28135	11229	16906	25900	38331
10-Jun	30219	11217	19003	27300	44206
11-Jun	31215	11347	19867	28600	47603
12-Jun	30501	11371	19130	28200	48067
13-Jun	30399	11458	18941	27000	46130
14-Jun	31858	12462	19396	25800	44741
15-Jun	32539	13985	18554	24800	44196
16-Jun	30689	15301	15389	24700	43254
17-Jun	30053	15903	14150	24800	40189
18-Jun	28264	16030	12234	24600	38750
19-Jun	25791	16163	9629	24000	36234
20-Jun	25950	16282	9668	23500	33129
21-Jun	25227	16694	8533	23200	32868
22-Jun	24537	16983	7554	23200	31733
23-Jun	24538	17635	6903	23400	30954
24-Jun	25986	19906	6080	23400	30303
25-Jun	28158	22067	6091	24000	30080
26-Jun	28735	22623	6111	25100	31191
27-Jun	27484	22722	4762	25800	31911
28-Jun	26272	22866	3406	26000	30762
29-Jun	24882	23004	1878	26100	29506
30-Jun	25427	23040	2388	26100	27978

Date	Canyon Ferry Operations Inflow	Canyon Ferry Operations Release	Effects	Missouri River Flows at Ulm* With Canyon Ferry	Missouri River Flows at Ulm* Without Canyon Ferry
1-Jul	30501	11371	19130	28200	30588
2-Jul	30399	11458	18941	27000	46130
3-Jul	31858	12462	19396	25800	44741
4-Jul	32539	13985	18554	24800	44196
5-Jul	30689	15301	15389	24700	43254
6-Jul	30053	15903	14150	24800	40189
7-Jul	28264	16030	12234	24600	38750
8-Jul	25791	16163	9629	24000	36234
9-Jul	25950	16282	9668	23500	33129
10-Jul	25227	16694	8533	23200	32868
11-Jul	24537	16983	7554	23200	31733
12-Jul	24538	17635	6903	23400	30954
13-Jul	25986	19906	6080	23400	30303
14-Jul	28158	22067	6091	24000	30080
15-Jul	28735	22623	6111	25100	31191
16-Jul	27484	22722	4762	25800	31911
17-Jul	26272	22866	3406	26000	30762
18-Jul	24882	23004	1878	26100	29506
19-Jul	25427	23040	2388	26100	27978
20-Jul	26492	23246	3246	26100	28488
21-Jul	26373	23632	2740	26000	29246
22-Jul	25034	23666	1367	25900	28640
23-Jul	23621	23621	0	25900	27267
24-Jul	23624	23624	0	25900	25900
25-Jul	23277	23620	-343	25700	25700
26-Jul	22202	23569	-1367	25600	25257
27-Jul	20810	23550	-2740	25500	24133
28-Jul	19055	23496	-4441	25200	22460
29-Jul	18143	23426	-5282	24900	20459
30-Jul	17148	21571	-4424	24700	19418
31-Jul	15858	18409	-2551	24100	19676

* Because the travel time between Canyon Ferry and the Ulm is approximately 1 day, the flows at Ulm without Canyon Ferry Reservoir is equal to the flows at Ulm with Canyon Ferry Reservoir plus the Canyon Ferry effects lagged 1 day.

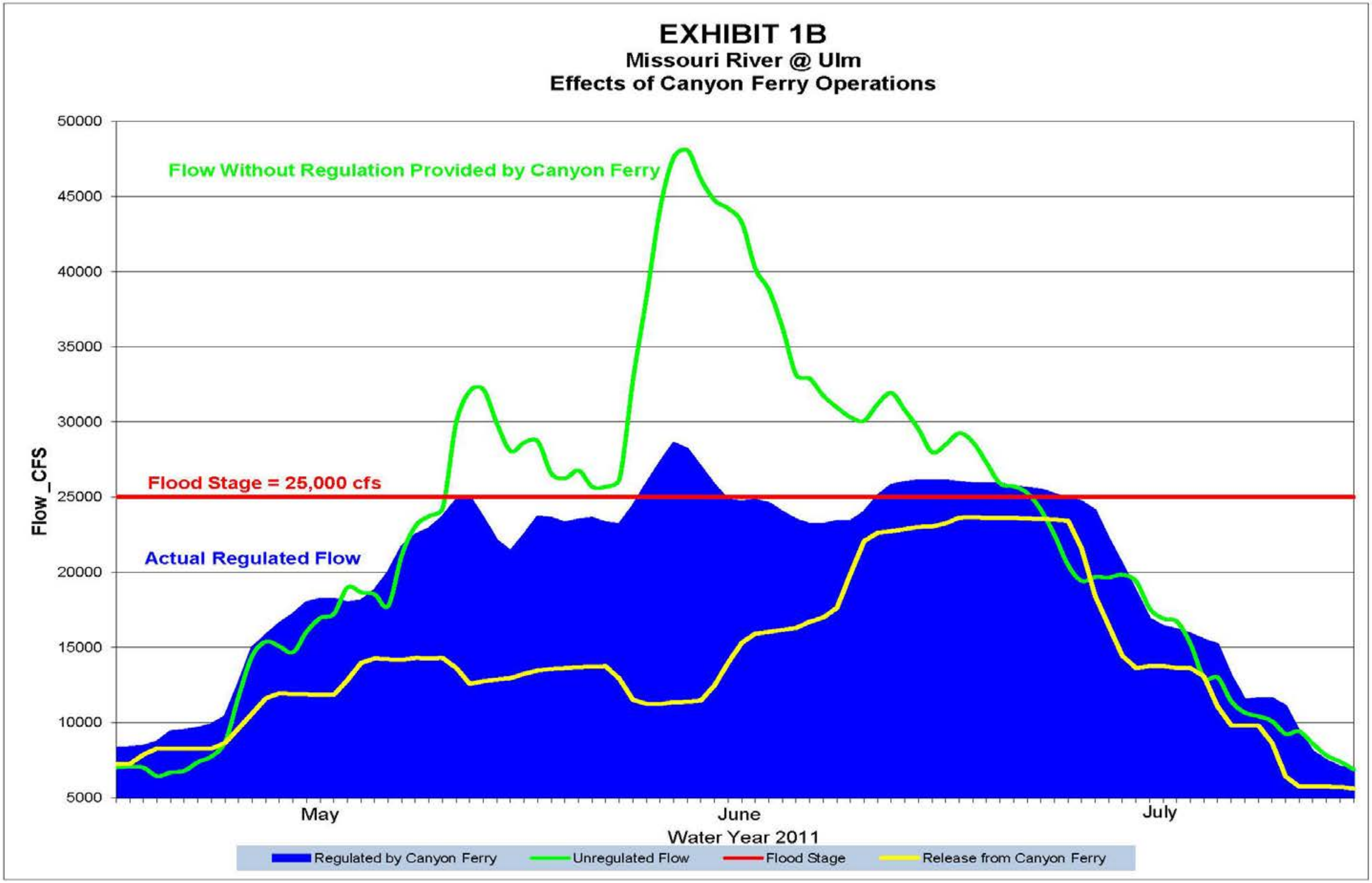


EXHIBIT 1B
Missouri River @ Ulm
Effects of Canyon Ferry Operations
Flow Without Regulation Provided by Canyon Ferry
Flood Stage = 25,000 cfs
Actual Regulated Flow
Flow_CFS
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
May
June
July
Water Year 2011
Regulated by Canyon Ferry
Unregulated Flow
Flood Stage
Release from Canyon Ferry

With storage in Canyon Ferry Lake slightly above average in September, releases to the Missouri River were maintained at or above 4,100 cfs, allowing storage in Canyon Ferry Lake to slowly decline to 1,704,660 acre-feet at elevation 3791.28. This was 100 percent of average and about 61,805 acre-feet or 1.91 feet lower than at the end of water year 2010.

During 2011, Canyon Ferry Lake Powerplant generated 437,036,000 kilowatt-hours, 113 percent of the long-term average dating back to 1967. This was 207,865,000 kilowatt-hours more than generated during the record low year of 2002 and 78,422,000 kilowatt-hours more than generated in 2010. The plant used 66 percent of the water released from the dam in 2011 (3,566,206 acre-feet).

The remainder of the water was released to meet the irrigation needs of the Helena Valley Irrigation District (195,675 acre-feet) and spilled through the river outlet gates (167,719 acre-feet) and through the spillway gates (1,467,301 acre-feet).

The Corps estimated that during 2011, Canyon Ferry Lake prevented $7,155,100 of local flood damages and also prevented $11,258,200 in flood damages downstream on the Missouri River below Fort Peck Reservoir for a total of $18,413,300. Since construction of the Canyon Ferry Dam in 1954, Canyon Ferry Reservoir has reduced flood damages by a total of $214,014,900.

Important Events in Water Year 2011

September 19: All irrigation deliveries to the Helena Valley Unit were discontinued for the 2010 irrigation season. To continue conserving storage in Canyon Ferry Reservoir, total release was decreased to 3,700 cfs (≈ 3,700 cfs through the powerplant and 0 cfs for the Helena Valley Project).

October 6: To allow for an underwater inspection of the powerplant intake structures, releases through the powerplant turbines were discontinued during 0900-1500 hour and all water was released through the river outlet gates up to 2,500 cfs. After the inspection turbine releases were increased to 4,900 cfs during 1500-2100 hour to make up the difference in quantity of flow and then reduced and maintained at 4,200 cfs at 2100 hour.

October 12-24: A 10-day maintenance outage was scheduled on Unit No. 2 of the Canyon Ferry Powerplant. To allow for the annual maintenance and continue evacuating storage from Canyon Ferry Lake as projected, turbine releases were restricted to two-unit capacity. The turbine releases from Canyon Ferry Lake were maintained at 3,380 cfs (≈ 3,380 cfs through the powerplant, 800 cfs through the river outlet gates and 0 cfs for the Helena Valley Project).

October 24: After 10-day maintenance outage on Unit No. 2 of the Canyon Ferry Powerplant was completed, all releases through the river outlet gates were discontinued and the total release was increased to 4,600 cfs to evacuate storage as planned (≈ 4,600 cfs through the powerplant and 0 cfs for the Helena Valley Project).

November 8-18: A 10-day maintenance outage was scheduled on Unit No. 1 of the Canyon Ferry Powerplant. To allow for the annual maintenance and continue evacuating storage from Canyon Ferry Lake as projected, turbine releases were restricted to two-unit capacity

The turbine releases from Canyon Ferry Lake were maintained at 5,000 cfs (≈ 3,575 cfs through the powerplant, 1,425 cfs through the river outlet gates and 0 cfs for the Helena Valley Project).

November 19: Based on the revised water supply forecast, total release out of Canyon Ferry to the Missouri River was increased to continue evacuating storage as planned (≈ 5,320 cfs through the powerplant and 0 cfs for the Helena Valley Project).

February 28-March 15: A 16-day maintenance outage was scheduled on Unit No. 3 of the Canyon Ferry Powerplant. To allow for the annual maintenance and continue evacuating storage from Canyon Ferry Lake as projected, turbine releases were restricted to two-unit capacity. The turbine releases from Canyon Ferry Lake were maintained at 5,100 cfs (≈ 3,580 cfs through the powerplant, 1,520 cfs through the river outlet gates and 0 cfs for the Helena Valley Project).

April 4: Irrigation deliveries to Helena Valley Unit were initiated on April 4, when the first irrigation deliveries for the 2011 irrigation season began and were adjusted periodically throughout the irrigation season to meet the irrigation demands. Total release from Canyon Ferry Lake was increased to 5,400 cfs (≈ 5,100 cfs through the powerplant and 300 cfs for the Helena Valley Project).

April 12: Reclamation attended and participated in the Upper Missouri River Advisory Group meeting held in the Director's Conference Room at MFWPs Building in Helena, Montana. 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 Lake for 2011.

April 19: The snow water content in the mountain snowpack in the Missouri River Basin has increased to 123 percent of average. Based on the revised water supply forecast, the total release from Canyon Ferry was increased to 6,015 cfs to continue evacuating storage as planned (≈ 5,700 cfs through the powerplant and 315 cfs for the Helena Valley Project).

April 21: To replace exciter brushes on G1 and G2, turbine releases were restricted to two-unit capacity. To continue evacuating storage as planned, the releases from Canyon Ferry were maintained at 6,015 cfs (≈ 3,800 cfs through the powerplant, 1,900 cfs through the river outlet gates, and 315 cfs for the Helena Valley Project).

April 25: The snow water content in the mountain snowpack in the Missouri River Basin has increased to 131 percent of average. Based on the revised water supply forecast, the total release from Canyon Ferry was increased to 6,655 cfs to continue evacuating storage as planned (≈ 5,840 cfs through the powerplant, 500 cfs through the river outlet gates, and 315 cfs for the Helena Valley Project).

April 27: The snow water content in the mountain snowpack in the Missouri River Basin has increased to 135 percent of average. Based on the revised water supply forecast, the total release from Canyon Ferry was increased to 7,260 cfs to continue evacuating storage as planned (≈ 5,945 cfs through the powerplant, 1,000 cfs through the river outlet gates, and 315 cfs for the Helena Valley Project).

May 3: The snow water content in the mountain snowpack in the Missouri River Basin has increased to 142 percent of average. Based on the revised water supply forecast, the total release from Canyon Ferry was increased to 8,245 cfs to continue evacuating storage as planned (≈ 5,930 cfs through the powerplant, 2,000 cfs through the river outlet gates, and 315 cfs for the Helena Valley Project).

May 9-10: The snow water content in the mountain snowpack in the Missouri River Basin remains over 140 percent of average. In addition, a large spring storm system produced significant amounts of precipitation in the upper Missouri River Basin. Based on the revised water supply forecast, the total release from Canyon Ferry was gradually increased to 10,000 cfs to continue evacuating storage as planned (≈ 5,930 cfs through the powerplant, 3,755 cfs through the spillway gates, and 315 cfs for the Helena Valley Project).

May 11-12: The snow water content in the mountain snowpack in the Missouri River Basin has increased to over 150 percent of average. The large spring storm system of May 7-10 produced significant amounts of precipitation in the upper Missouri River Basin. Based on the revised water supply forecast, the total release from Canyon Ferry was gradually increased to 12,000 cfs to continue evacuating storage as planned (≈ 5,910 cfs through the powerplant, 5,775 cfs through the spillway gates, and 315 cfs for the Helena Valley Project).

May 18-19: The snow water content in the mountain snowpack in the Missouri River Basin remains well above average. The snowmelt runoff increased inflows into Canyon Ferry considerably. To control the rate of fill of storage and prepare for the snowmelt runoff, the total release from Canyon Ferry was gradually increased to 14,300 cfs to continue evacuating storage as planned (≈ 5,885 cfs through the powerplant, 7,800 cfs through the spillway gates, and 615 cfs for the Helena Valley Project).

May 26: Heavy precipitation in the Helena and Great Falls area caused several creeks and streams to increase considerably. In an attempt to maintain flows in the Missouri River downstream of Canyon Ferry at near safe channel capacity, total release out of Canyon Ferry was reduced to 12,500 cfs (≈ 5,885 cfs through the powerplant, 6,000 cfs through the spillway gates, and 615 cfs for the Helena Valley Project).

May 31: As the precipitation in the Helena and Great Falls area diminished and the downstream tributary flows slowly receded, total release out of Canyon Ferry was increased to 13,500 cfs to control the rate of fill of storage (≈ 5,885 cfs through the powerplant, 7,000 cfs through the spillway gates, and 615 cfs for the Helena Valley Project).

June 7: Additional precipitation in the Helena and Great Falls area, once again caused many creeks and streams to increase. In an attempt to maintain flows in the Missouri River downstream of Canyon Ferry at near safe channel capacity, total release out of Canyon Ferry was gradually reduced to 11,000 cfs (≈ 5,900 cfs through the powerplant, 5,100 cfs through the spillway gates, and 0 cfs for the Helena Valley Project).

June 14: As the precipitation in the Helena and Great Falls area diminished and the downstream tributary flows once again slowly receded, total release out of Canyon Ferry was increased to 13,000 cfs to control the rate of fill of storage (≈ 5,600 cfs through the powerplant, 7,400 cfs through the spillway gates, and 0 cfs for the Helena Valley Project).

June 15-16: As the precipitation in the Helena and Great Falls area diminished, the downstream tributary flows once again slowly receded and the irrigation demands increased for the Helena Valley Irrigation District. Inflows into Canyon Ferry were averaging over 32,500 cfs. To control the rate of fill of storage, the total release out of Canyon Ferry was gradually increased to 15,850 cfs (≈ 5,500 cfs through the powerplant, 10,000 cfs through the spillway gates, and 350 cfs for the Helena Valley Project).

June 21: Inflows into Canyon Ferry continued to remain over 26,600 cfs and reservoir storage was approaching the top of the joint-use pool. Irrigation demands also increased for the Helena Valley Irrigation District. To control the rate of fill of storage, total release from Canyon Ferry was increased to 17,000 cfs (≈ 5,250 cfs through the powerplant, 11,275 cfs through the spillway gates, and 475 cfs for the Helena Valley Project).

June 23: Inflows into Canyon Ferry continued to remain over 24,000 cfs and reservoir storage reached the top of the joint-use pool and was still increasing. To control the rate of fill of storage, total release from Canyon Ferry was increased to 18,000 cfs (≈ 5,000 cfs through the powerplant, 12,525 cfs through the spillway gates, and 475 cfs for the Helena Valley Project).

June 24-28: Inflows into Canyon Ferry continued to remain over 24,000 cfs and reservoir storage reached the top of the joint-use pool and was still increasing. Irrigation demands also increased for the Helena Valley Irrigation District. To control the rate of fill of storage, total release from Canyon Ferry was gradually increased to 22,675 cfs (≈ 5,000 cfs through the powerplant, 17,025 cfs through the spillway gates, and 650 cfs for the Helena Valley Project).

July 1: Inflows into Canyon Ferry increased to near 27,000 cfs. To control the rate of storage in the exclusive flood control pool, total release from Canyon Ferry was increased to the peak release for the year of 23,550 cfs (≈ 5,000 cfs through the powerplant, 17,900 cfs through the spillway gates, and 650 cfs for the Helena Valley Project).

July 11-14: With the high elevation snowmelt essentially over and the streamflows upstream of Canyon Ferry gradually decreasing, total release from Canyon Ferry was gradually decreased to 13,800 cfs to slow the evacuation rate of storage from the exclusive flood pool (≈ 5,000 cfs through the powerplant, 8,000 cfs through the spillway gates, and 800 cfs for the Helena Valley Project).

July 20-21: With the high elevation snowmelt essentially over and the streamflows upstream of Canyon Ferry decreasing, total release from Canyon Ferry was gradually decreased to 9,800 cfs to slow the evacuation rate of storage from the exclusive flood pool (≈ 5,000 cfs through the powerplant, 4,000 cfs through the spillway gates, and 800 cfs for the Helena Valley Project).

July 25: With the high elevation snowmelt essentially over and the streamflows upstream of Canyon Ferry decreasing, total release from Canyon Ferry was decreased to 7,800 cfs to slow the evacuation rate of storage from the exclusive flood pool (≈ 5,000 cfs through the powerplant, 2,000 cfs through the river outlet gates, and 800 cfs for the Helena Valley Project).

July 26: With the high elevation snowmelt essentially over and the streamflows upstream of Canyon Ferry decreasing, all spills were discontinued and the total release from Canyon Ferry was decreased to 5,800 cfs to slow the evacuation rate of storage from the exclusive flood pool (≈ 5,000 cfs through the powerplant and 800 cfs for the Helena Valley Project).

August 4: To replace an alarm timer on Unit No. 3 of the Canyon Ferry powerplant, total release from Canyon Ferry was maintained at 5,700 cfs and adjusted as follows. (≈ 3,270 cfs through the powerplant, 1,630 cfs through the river outlet gates, and 800 cfs for the Helena Valley Project).

August 1-September 30: Maintenance was conducted to remove stoplog guides upstream of the spillway radial gates. Total release from Canyon Ferry was scheduled in a manner not to interfere with the previous scheduled release from Canyon Ferry.

September 6: Based on the September water supply forecast, total release from Canyon Ferry was decreased to 5,200 cfs to slow the evacuation rate of storage (≈ 4,400 cfs through the powerplant and 800 cfs for the Helena Valley Project).

September 13-30: To allow for maintenance on Unit No. 3 of the Canyon Ferry powerplant and facilitate the Contractor on the stoplog removal project, the releases out of the turbines and river outlet gates at Canyon Ferry were adjusted as required to maintain a total daily flow of 4,400 cfs downstream of Holter Dam.

September 30: All irrigation deliveries to the Helena Valley Unit were discontinued for the 2011 irrigation season. To continue conserving storage in Canyon Ferry Reservoir, total release was maintained 4,400 cfs (≈ 4,400 cfs through the powerplant and 0 cfs for the Helena Valley Project).

Additional statistical information of Canyon Ferry Reservoir and its operations during water year 2011 can be found on Table MTT6 and Figure MTG4.

Table MTT6:
Hydrologic Data for Water Year 2011
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

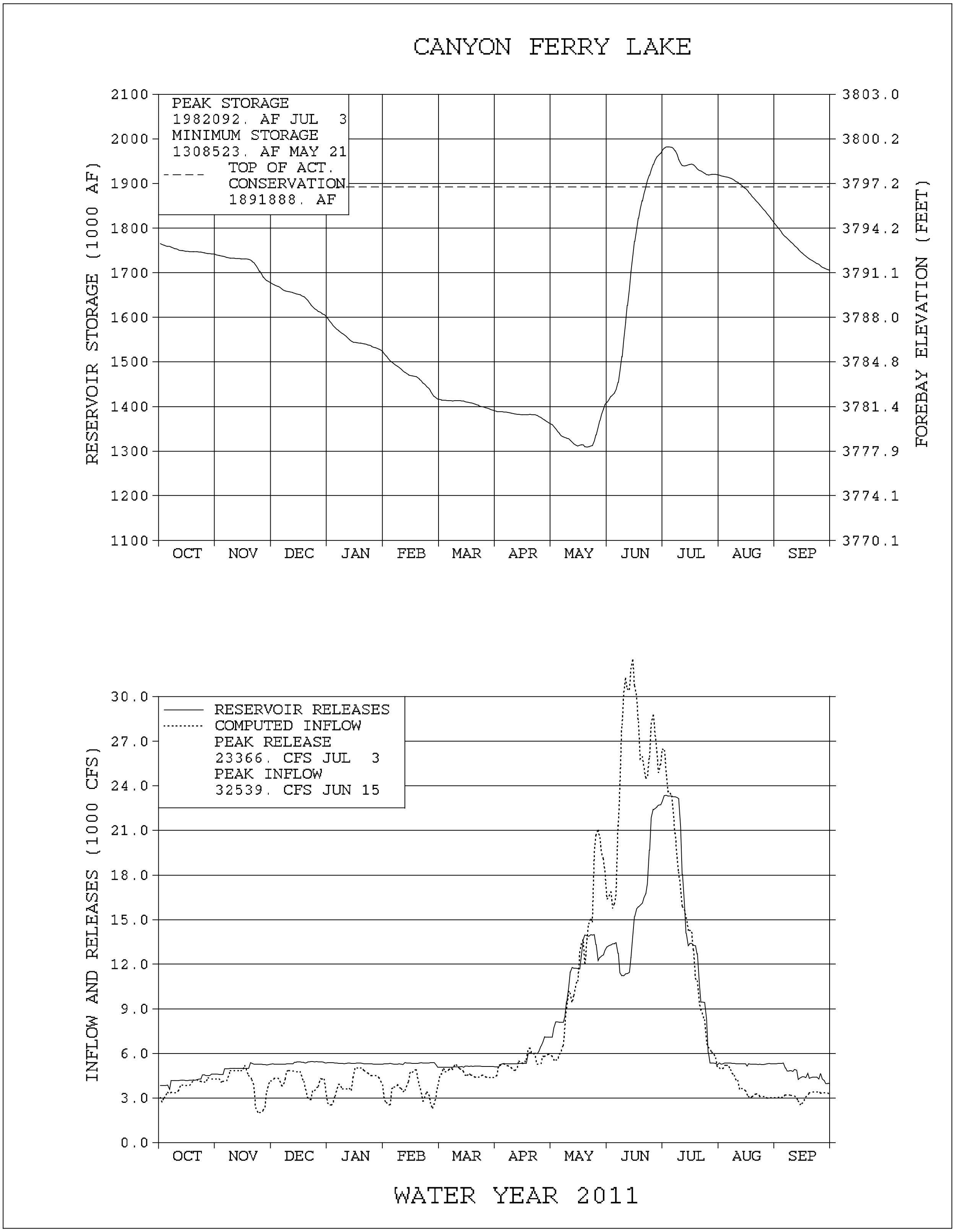
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	3793.19	1,766,465	OCT 01, 2010
END OF YEAR	3791.28	1,704,660	SEP 30, 2011
ANNUAL LOW	3778.20	1,308,523	MAY 21, 2011
ANNUAL HIGH	3799.68	1,982,092	JUL 03, 2011
HISTORIC HIGH	3800.00	2,050,900	JUN 23, 1964

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	5,334,442	OCT 10-SEP 11	5,309,422	OCT 10-SEP 11
DAILY PEAK (CFS)	32,539	JUN 15, 2011	23,366	JUL 03, 2011
DAILY MINIMUM (CFS)	2,034	NOV 24, 2010	3,616	OCT 06, 2010
PEAK SPILL (CFS)			18,063	JUL 05, 2011
TOTAL SPILL (AF)			1,635,020	10/12-24/10 11/08-18/10 02/28-03/15/11 04/25-5/09/11 05/09-07/25/11 09/10-30//1

MONTH	INFLOW		OUTFLOW*				CONTENT	
	KAF	% OF AVG	PUMPED TO HELENA VALLEY (KAF)	% OF AVG	RIVER KAF	% OF AVG	KAF	% OF AVG
OCTOBER	233.1	84	0.0	---	259.7	100	1,740.5	101
NOVEMBER	237.9	84	0.0	---	301.4	112	1,677.1	96
DECEMBER	250.3	110	0.0	---	330.1	112	1,597.3	96
JANUARY	249.2	114	0.0	---	328.0	111	1,518.4	96
FEBRUARY	197.0	91	0.0	---	296.6	112	1,418.8	94
MARCH	286.3	109	0.0	---	313.8	107	1,391.4	96
APRIL	321.6	98	7.9	128	340.7	113	1,364.4	94
MAY	741.5	138	13.3	95	688.4	188	1,404.2	86
JUNE	1,508.3	207	10.4	63	934.6	191	1,967.5	104
JULY	888.1	276	20.8	113	914.9	248	1,920.0	105
AUGUST	232.7	143	15.8	93	326.3	129	1,810.6	105
SEPTEMBER	188.2	93	19.2	219	275.0	118	1,704.7	100
ANNUAL	5,334.4	141	87.5	106	5,309.4	144		
APRIL-JULY	3,459.6	180						

* Average for the 1955-2011 period.

Figure MTG4:
Canyon Ferry Lake



HELENA VALLEY RESERVOIR

Helena Valley Reservoir is a regulating offstream reservoir for Helena Valley Unit (P-S MBP), located west of Canyon Ferry Reservoir. 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 Helena Valley Reservoir or from other streams.

At the beginning of the year, storage in Helena Valley Reservoir was 8,510 acre-feet at an elevation of 3816.06 feet. Helena Valley Reservoir reached a low for the year of 6,603 acre-feet at an elevation of 3811.38 feet on March 31, 2011. With new operating criteria in place, goals were to fill Helena Valley Reservoir by May 1 and maintain it nearly full through June. In response, diversions to the Helena Valley Unit from Canyon Ferry Reservoir were started on April 4. Storage in Helena Valley Reservoir then steadily increased to a peak for the year of 10,394 acre-feet at an elevation of 3819.96 feet on May 5, 2011. By the end of water year 2011, Helena Valley Reservoir ended with a storage content of 8,646 acre-feet at elevation 3816.36. During 2011, 87,477 acre-feet of water was pumped to Helena Valley Reservoir from Canyon Ferry Reservoir. Helena Valley Irrigation District released 72,351 acre-feet for irrigation. All irrigation deliveries were discontinued for the 2011 season on September 1.

The reservoir provided an adequate water supply to satisfy all irrigation requirements for the Helena Valley Unit in 2011 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 Water Year 2011
Helena Valley Reservoir

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	3816.06	8,510	10/01/10
End of Year	3816.36	8,646	09/30/11
Annual Low	3811.38	6,603	03/31/11
Annual High	3819.96	10,394	05/05/11
Historic High	3820.60	10,738	6/02/75

INFLOW-OUTFLOW DATA	ANNUAL
Pumped from Canyon Ferry to Helena Valley Unit	87,477 AC-FT
Inflow to Helena Valley Reservoir	74,756 AC-FT
Released from reservoir for irrigation	72,351 AC-FT
Delivered to the City of Helena for municipal use	2,269 AC-FT

MONTH	RESERVOIR		PUMPED TO HELENA VALLEY (KAF)
	FOREBAY ELEVATION (FEET)	STORAGE CONTENT (KAF)	
OCTOBER	3814.43	7.8	0
NOVEMBER	3813.70	7.5	0
DECEMBER	3812.95	7.2	0
JANUARY	3812.45	7.0	0
FEBRUARY	3811.91	6.8	0
MARCH	3811.38	6.6	0
APRIL	3819.53	10.2	7.9
MAY	3819.40	10.1	13.3
JUNE	3817.63	9.2	10.4
JULY	3814.34	7.8	20.8
AUGUST	3812.16	6.9	15.8
SEPTEMBER	3816.36	8.6	19.2
ANNUAL			87.5

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 dam 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

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 started 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 below average runoff in 2010 was aided by ample and timely rain storms on the projects reducing the amount of diversions needed to fulfill demands. The irrigation season ended early as it was desired to continue construction of the Turnbulls Hydropower Plant on the Greenfields Irrigation Canal as early as possible before winter set in. The August through September inflow to Gibson Reservoir was 78 percent of average, totaling 35,300 acre-feet at the end of water year 2010.

At the conclusion of the 2010 irrigation season, fall and winter releases from Gibson Reservoir continued to be diverted to Pishkun Reservoir to bring the reservoir back to desired winter carry over levels, as well as to prevent the need to move water before the snow had a chance to melt out of the canals. In mid-September, winter releases to the Sun River were reduced and maintained between 160 and 220 cfs with the expectation that with normal snowpack all storage in the basin would be utilized.

With the inflows averaging 240 cfs and releases averaging 109 cfs during September, storage in Gibson Reservoir slowly increased and entered water year 2011 with a storage content of 16,200 acre-feet at elevation 4635.23. This was 58 percent of average and only 17 percent of full capacity. This was also 80,048 acre-feet or 88.77 feet below the top of the conservation pool and was 11,138 acre-feet or 25.93 feet higher than at the beginning of water year 2010. During December, the reservoir gradually filled and by the end of December storage had increased to a content of 13,472 acre-feet at elevation 4629.80.

Precipitation in the Sun River Basin varied from well above average too well below average during water year 2011. Cumulative precipitation for October through December was below average for both the mountain and valley areas in the Sun River Basin. By January 1, the NRCS measured the mountain snowpack in the Sun River Basin at 105 percent of average, a 25 percent increase from a year ago. During January, precipitation was above average in the mountains and near average in the valley, causing snowpack to increase to 108 percent of average by February 1.

During February, precipitation was above average in the valley and mountain regions of the basin. By March 1, snowpack had jumped to 120 percent of average. March precipitation was near 150 percent in the valley and 107 percent of average in the mountain regions. The cumulative precipitation through the end of March was 97 and 93 percent of average for the mountain and valley areas, respectively.

On April 1, the NRCS measured the snowpack at 132 percent of average. In 2011, the snowpack in the Sun River Basin reached its peak accumulation on May 1, and was 161 percent of the average peak. Snowmelt runoff began entering Gibson Reservoir during the second week in May; fortunately, cool temperatures kept the runoff at manageable rates instead of having all of the snow melt out at once. Releases to Pishkun Reservoir were initiated on May 9, but storage in Gibson Reservoir continued to increase as the inflows gradually increased. In preparation for the large spring runoff that was anticipated, the outlet works gates were operated in a manner to pass the inflows until the beginning of the major snowmelt runoff. On May 1, Gibson Reservoir had a storage content of 20,561 acre-feet at elevation 4643.10, 75,727 acre-feet or 80.9 feet below the top of the conservation pool. Even with the large amount of storage space that was available and the high releases made to maintain storage as low as possible, the reservoir filled to the lip of the spillway by June 4, primarily due to a large precipitation event that caused daily inflows into Gibson Reservoir to exceed 10,000 cfs for 2 days. The combination of the snowmelt runoff and spring rain showers produced a peak inflow for the year of 10,398 cfs on June 8.

During April and May, precipitation in both the valley and mountain areas was above average. Valley and mountain precipitation during June was 161 and 109 percent of average, respectively. The above average snowpack and the continued above average spring precipitation produced an April-July runoff that was about 150 percent of average for the basin. However; due to the delayed snowmelt, more of the water was able to be stored and used as irrigation was in full swing before a lot of the runoff made its way out of the mountains. Gibson Reservoir was able to remain within a foot of normal full pool through July 24, a very rare occurrence in the irrigation driven basin. The inflows during April, May, June, and July, were 50, 111, 189, and 252 percent of average, respectively.

As Gibson Reservoir began filling, releases during mid April were increased to move water out of the reservoir, due to the high levels of snowpack in the basin. On June 22, with only the high elevation snowmelt remaining, the spillway gates were gradually closed with exception to a 1 foot opening on two gates. It was not until July 3 that the spillway gates were closed for the season. On June 29, storage in Gibson Reservoir reached the top of the conservation pool at elevation 4724 with a storage content of 96,477 acre-feet and remained within a 1 foot of full pool until July 24.

The peak discharge to the Sun River over the Sun River Diversion Dam was recorded on June 8 at 10,571 cfs. The snowmelt runoff peaked in early June during a rain on snow event with the inflow reaching a peak of 10,398 cfs on June 8. Fortunately, the rain only lasted 2 days and was immediately followed with a cold front that drastically reduced inflows to the reservoir, allowing flows in the river channel to recede back into its banks. The actual April-July inflow totaled 692,600 acre-feet, approximately 150 percent of average and 414,600 acre-feet or 149 percent more than the previous year.

Weather conditions remained fairly mild in July, when precipitation in the valley and mountain areas was below average at 75 and 78 percent of average, respectively. The conditions turned dry in August, resulting in the cumulative water year precipitation through August to drop by nearly 10 percent for valley and mountain areas totaling 108 and 105 percent of average, respectively. Concluding the water year, conditions remained dry during September when valley and mountain precipitation were 38 and 49 percent of average, respectively. The August-September inflow to Gibson Reservoir totaled about 55,300 acre-feet, 120 percent of average. During September the average inflow was approximately 322 cfs. Gibson Reservoir ended the water year with a content of 12,094 acre-feet of storage at elevation 4626.94 on September 30. This was 43 percent of average and 13 percent of normal full.

Total annual inflow for water year 2011 was 142 percent of average, totaling 808,258 acre-feet. This was 429,827 acre-feet or 114 percent more than the inflow experienced during water year 2010.

Diversions to the Pishkun Supply Canal were started on May 9 and for Willow Creek Reservoir on April 20. During late April and early May, storage was moved from Gibson Reservoir to refill Pishkun and Willow Creek Reservoirs. The total net inflow to Pishkun Reservoir during water year 2011 was 265,399 acre-feet, 116 percent of average

Spring diversions to Willow Creek Reservoir were discontinued on May 9. Pishkun Reservoir reached its spring runoff peak elevation on May 24. Willow Creek Reservoir elevations increased until June 11 when the reservoir reached peak content. The net inflow for the water year to Willow Creek Reservoir was 22,396 acre-feet, 155 percent of average.

Greenfields Irrigation District discontinued water delivery on October 6. Supplemental water contracts served by Greenfields were satisfied while Gibson Reservoir releases were in excess of senior irrigation demands. Based on average diversions to Pishkun Reservoir and supplemental water delivered, Greenfields delivered full allotments to all of its water users in 2011. The total diversion for Fort Shaw Irrigation District was average during 2011.

Even though there is no space allocated to flood control in Gibson Reservoir, the Corps still estimates flood damages prevented by Gibson Reservoir.

The Corps determined that during 2011, Gibson Reservoir prevented $9,000 in local flood damages, but did not contribute to the reduction of flood damages downstream on the Missouri River below Fort Peck Reservoir. Since 1950 Gibson Reservoir has prevented $3,075,100 in flood damages.

Pishkun Reservoir

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.

In 2002, Reclamation surveyed Pishkun Reservoir to develop a topographic map and compute a present storage-elevation relationship (area-capacity tables). The data was used to calculate reservoir capacity lost due to sediment accumulation since the previous survey was completed in 1940. The 2002 survey determined that Pishkun Reservoir has a storage capacity of 46,694 acre-feet and a surface area of 1,522 acres at reservoir elevation 4370. Comparisons show that the total reservoir capacity in 2002 is slightly greater in volume than the original published volume. It is the general conclusion that the small difference between the 1940 and 2002 surveys is due to the differences in the detail of the two surveys rather than sediment accumulation. The revised area-capacity table was put into effect on October 1, 2005, reflecting the new storage levels.

All canal diversions from the Sun River to Pishkun Reservoir during the 2010 irrigation season were discontinued on November 29, 2010. Reservoir content in Pishkun Reservoir at the beginning of water year 2011 was 20,272 acre-feet at elevation 4347.52.

Storage during the fall and winter of 2011 was maintained slightly above average at about 9,000 acre feet below the top of the active conservation pool. Diversions to refill the reservoir began in early-May and by the end of May storage had reached the top of active conservation pool at elevation 4370. Once irrigation releases began, storage fluctuated based on meeting irrigation demands. Due to the precipitation in late May, demands decreased allowing storage to increase to a spring peak content of 48,207 acre-feet at elevation 4370.98 on May 24.

Irrigation releases from Pishkun Reservoir were started on May 19 with a maximum release of 1,712 cfs recorded on July 13. The maximum inflow was 1,405 cfs on August 9, 2011. All diversions from the Sun River to Pishkun Reservoir were discontinued on October 4, 2011. All irrigation releases from Pishkun Reservoir were discontinued on October 6, 2011.

Approximately 246,700 acre-feet of water, 108 percent of average, was released from Pishkun Reservoir during May 19 through October 6 to help meet the irrigation demands on the Sun River Project. By the end of the water year, the reservoir storage was 39,005 acre-feet at elevation 4364.73. This was 119 percent of average and 84 percent of full capacity.

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

Willow Creek Reservoir

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 O Ranch, and other downstream senior water users.

In 2002, Reclamation surveyed Willow Creek Reservoir to develop a topographic map and compute a present storage-elevation relationship (area-capacity tables). The data was used to calculate reservoir capacity lost due to sediment accumulation since dam closure in 1911. The 2002 survey determined that Willow Creek Reservoir has a storage capacity of 34,819 acre-feet and a surface area of 1,509 acres at a reservoir elevation of 4144.00 feet. Since closure in 1911, the reservoir had an estimated volume change of 431 acre-feet below reservoir elevation 4144.00. This volume represents a 1.2 percent change in total capacity at this elevation. The revised area-capacity table was put into effect on October 1, 2005, reflecting the new storage levels.

All diversions from the Sun River to Willow Creek Reservoir during the 2011 irrigation season were discontinued on May 9, 2011. Reservoir content in Willow Creek at the beginning of water year 2011 was 23,138 acre-feet at elevation 4135.74. This was 133 percent of average and 73 percent of full capacity.

Storage in Willow Creek Reservoir gradually increased throughout the winter. Diversions from the Sun River to Willow Creek Reservoir during 2011 were initiated on April 19 at a rate of approximately 55 cfs. The diversions began to reach Willow Creek Reservoir on April 23 and storage increased through April and May to a peak storage content for the year of 32,552 acre-feet at elevation 4142.48 on June 11. This storage level was 105 percent of average and was at 102 percent of full capacity. Due to the good carryover from water year 2010 diversions to Willow Creek Reservoir were maintained until May 9. The peak inflow for the year was 475 cfs on June 9, due to a significant precipitation event that affected the drainage basin.

To help meet irrigation demands within the Sun River Irrigation Project and to reduce reservoir levels due to the large June Rain event, releases were made from May 26 through September 13. Approximately 17,800 acre-feet of storage was released from Willow Creek Reservoir to help meet the irrigation demands in 2011. As a result, storage was maintained at near full pool through the irrigation season. No fall diversions were required to refill Willow Creek Reservoir this year. Willow Creek Reservoir ended the water year with a storage content of 27,731 acre-feet at elevation 4139.12. This was 159 percent of average and 87 percent of normal full capacity.

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

Important Events in Water Year 2011

March 1, 2011: Snowpack reported at 120 percent of average.

April 1, 2011: Snowpack reported at 132 percent of average. April-July runoff forecast at 114 percent of normal, totaling 546,000 acre-feet.

April 12, 2011: Based on mountain snowpack in the basin, releases out of Gibson Reservoir were increased to match inflows until inflows exceeded river outlet capacity.

April 18, 2011: Diversions out of Willow Creek Reservoir were initiated.

May 9, 2011: Diversions out of Pishkun Reservoir were initiated.

May 9, 2011: Diversions to Willow Creek Feeder Canal were discontinued for the year.

May 24, 2011: Storage in Pishkun Reservoir reached peak content for the year of 48,207 acre-feet at elevation 4370.98.

June 4, 2011: Storage in Gibson Reservoir reached the spillway crest at elevation 4612.

June 8, 2011: Peak Inflow to Gibson Reservoir is 10,398 cfs.

June 8, 2011: Peak Release from Gibson Reservoir was 10,571 cfs.

June 9, 2011: Willow Creek Reservoir experienced a peak inflow for the year of 475 cfs, due to heavy precipitation above the reservoir.

June 9, 2011: Willow Creek Reservoir recorded a peak release of 328 cfs.

June 11, 2011: Storage in Willow Creek Reservoir reached peak content for the year of 32,552 acre-feet at elevation 4142.48.

June 24, 2011: Storage in Gibson Reservoir reached the top of the conservation pool at elevation 4725.

July 13, 2011: Peak Release from Pishkun Reservoir is 1,712 cfs.

July 23, 2011: Gibson Reservoir begins to drop below the top of the conservation pool at elevation 4725.

August 9, 2011: Inflows into Pishkun Reservoir peaked at approximately 1,405 cfs.

October 4, 2011: Diversions to Pishkun Reservoir were discontinued for the year.

October 6, 2011: Releases from Pishkun Reservoir were discontinued for the season.

Table MTT8-A:
Hydrologic Data for Water Year 2011
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	4635.23	16,240	OCT 01, 2010
END OF YEAR	4626.94	12,094	SEP 30, 2011
ANNUAL LOW	4622.84	10,227	NOV 03, 2011
ANNUAL HIGH	4724.34	96,918	JUN 29, 2011
HISTORIC HIGH	4732.23	116,400	JUN 08, 1964

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	808,258	OCT 10-SEP 11	812,404	OCT 10-SEP 11
DAILY PEAK (CFS)	10,398	JUN 08, 2011	10,571	JUN 08, 2011
DAILY MINIMUM (CFS)	106	JAN 10, 2011	26	OCT 06, 2010

MONTH	INFLOW		OUTFLOW*				CONTENT	
	KAF	% OF AVG	TOTAL CANAL KAF	% OF AVG	RIVER KAF	% OF AVG	KAF	% OF AVG
OCTOBER	12.2	73	12.2	366	5.0	51	13.7	46
NOVEMBER	10.4	64	8.9	598	4.9	45	12.2	35
DECEMBER	9.8	71	0.0	---	10.3	92	13.5	35
JANUARY	10.8	83	0.0	---	11.4	115	15.6	37
FEBRUARY	8.4	72	0.0	---	10.6	129	16.0	36
MARCH	8.9	60	0.0	---	11.9	122	16.1	34
APRIL	19.6	50	2.0	24	17.8	82	20.4	38
MAY	172.5	111	31.7	81	125.0	129	74.6	88
JUNE	338.4	189	23.6	42	335.7	251	95.8	108
JULY	162.0	252	80.7	111	116.4	425	86.3	147
AUGUST	36.1	139	75.0	185	16.4	124	35.2	106
SEPTEMBER	19.2	105	33.9	287	9.2	91	12.1	43
ANNUAL	808.3	142	266.9	113	674.6	186		
APRIL-JULY	692.6	150						

* Average for the 1931-2011 period.

Figure MTG5:
Gibson Reservoir

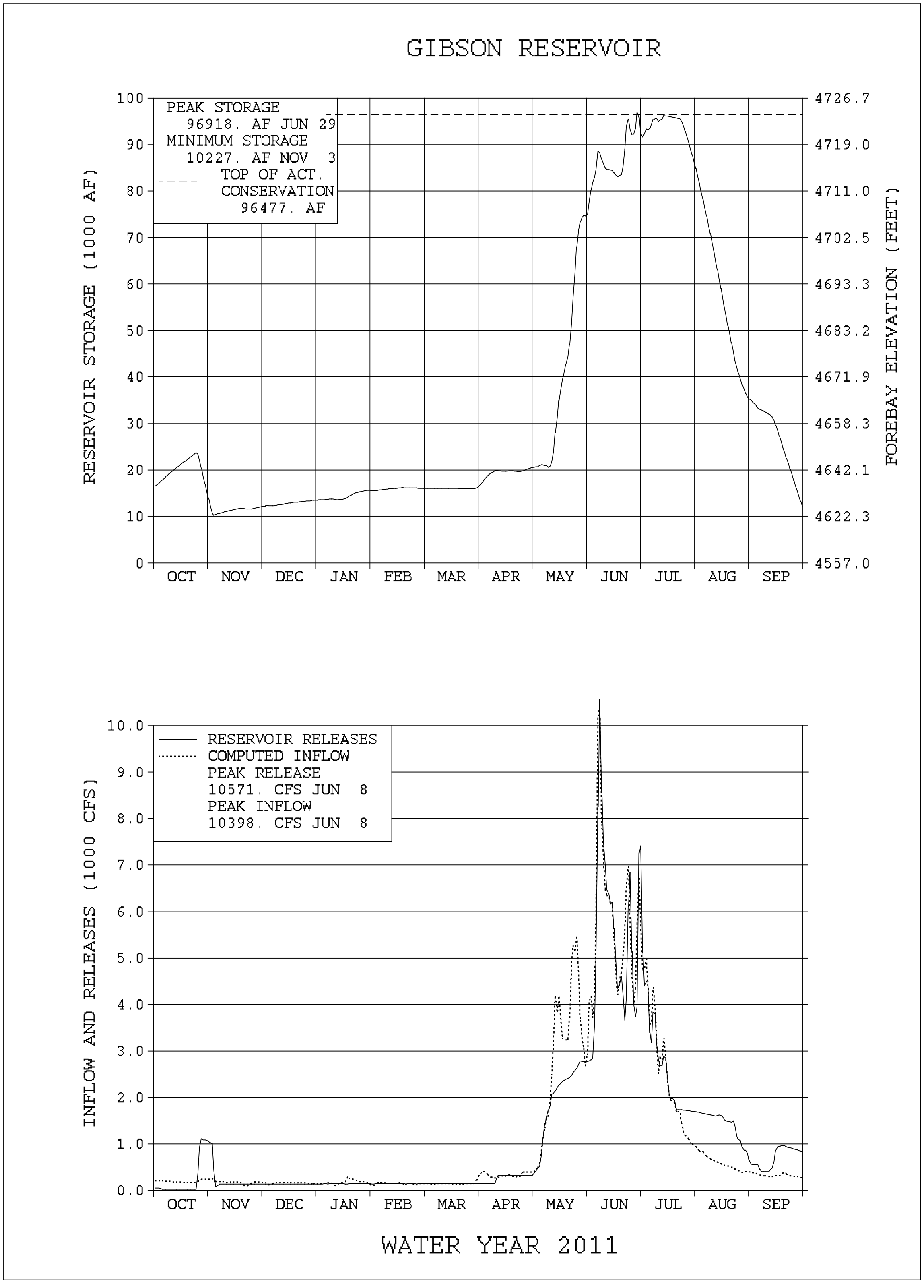


Table MTT8-B:
Hydrologic Data for Water Year 2011
Pishkun Reservoir (Sun River Project)

NEW SEDIMENT SURVEY DATA EFFECTIVE 10/01/2005

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4342.00	16,008	16,008
TOP OF ACTIVE CONSERVATION	4370.00	46,694	30,686

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4347.52	20,272	OCT 01, 2010
END OF YEAR	4364.73	39,005	SEP 30, 2011
ANNUAL LOW	4347.52	20,272	OCT 01, 2010
ANNUAL HIGH	4370.98	48,207	MAY 24, 2011
HISTORIC HIGH	4371.40	48,950	JUL 04, 1953

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	265,399	OCT 10-SEP 11	246,666	OCT 10-SEP 11
DAILY PEAK (CFS)	1,405	AUG 09, 2011	1,712	JUL 13, 2011
DAILY MINIMUM (CFS)	0	*	0	*

* During nonirrigation season

MONTH	INFLOW*		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	12.7	482	0.0	---	33.0	97
NOVEMBER	4.6	599	0.0	---	37.6	109
DECEMBER	-0.1	---	0.0	---	37.4	109
JANUARY	-0.2	---	0.0	---	37.2	109
FEBRUARY	-0.1	---	0.0	---	37.1	109
MARCH	-0.1	---	0.0	---	37.0	108
APRIL	-0.3	---	0.0	---	36.7	90
MAY	23.1	64	13.0	43	46.8	102
JUNE	29.5	51	31.4	51	44.9	106
JULY	81.1	115	95.6	128	30.4	82
AUGUST	76.4	181	61.4	141	45.3	129
SEPTEMBER	38.9	297	45.3	279	39.0	119
ANNUAL	265.4	116	246.7	108		
APRIL-JULY	133.4	74				

* Average for the 1947-2011 period.

Figure MTG6:
Pishkun Reservoir

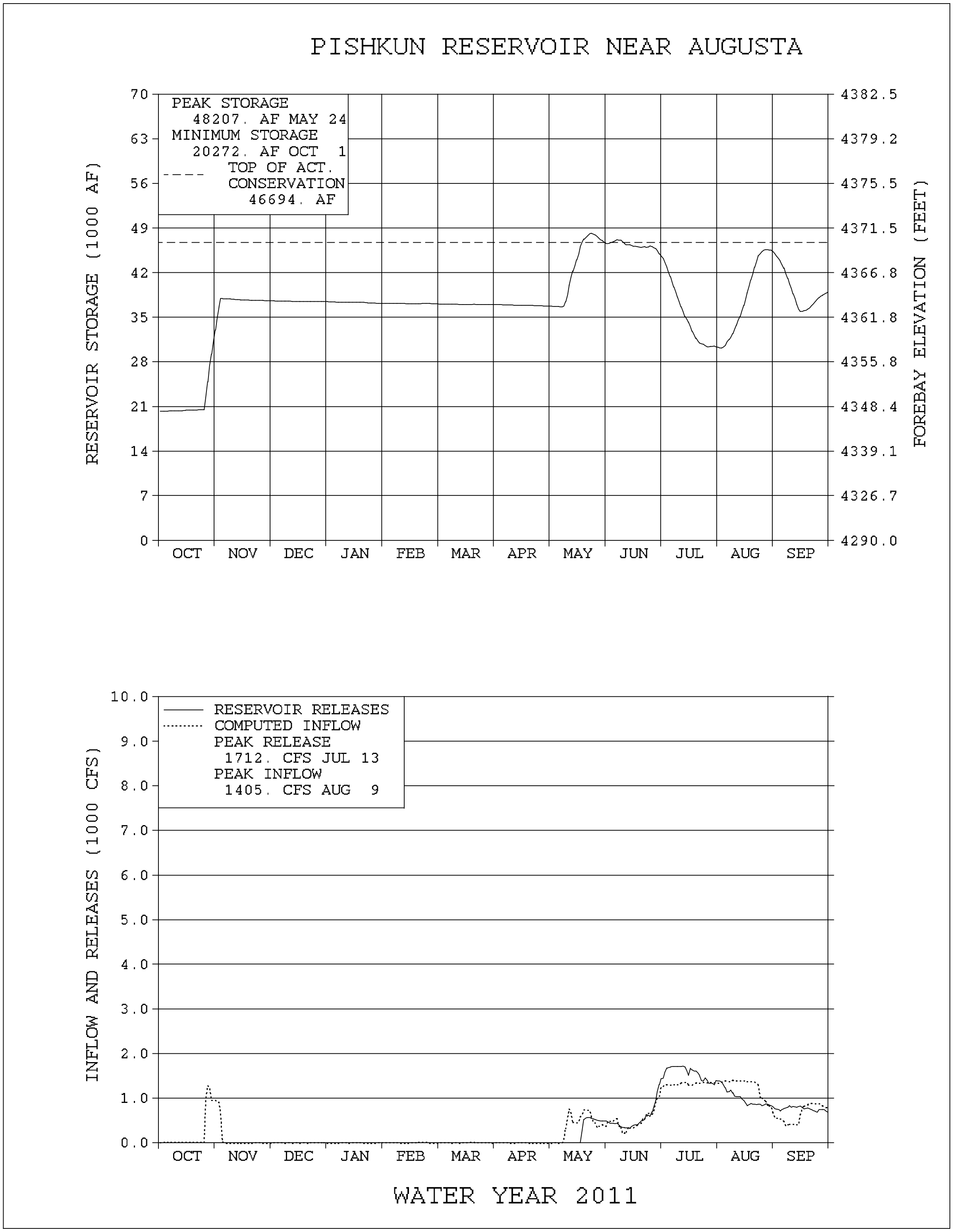


Table MTT8-C:
Hydrologic Data for Water Year 2011
Willow Creek Reservoir (Sun River Project)

NEW SEDIMENT SURVEY DATA EFFECTIVE 10/01/2005

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4085.28	1	1
TOP OF ACTIVE CONSERVATION	4142.00	31,848	31,847

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4135.74	23,138	OCT 01, 2010
END OF YEAR	4139.12	27,731	SEP 30, 2011
ANNUAL LOW	4135.55	22,887	NOV 05, 2010
ANNUAL HIGH	4142.48	32,552	JUN 11, 2011
HISTORIC HIGH	4144.00	35,300	JUN 22, 1975

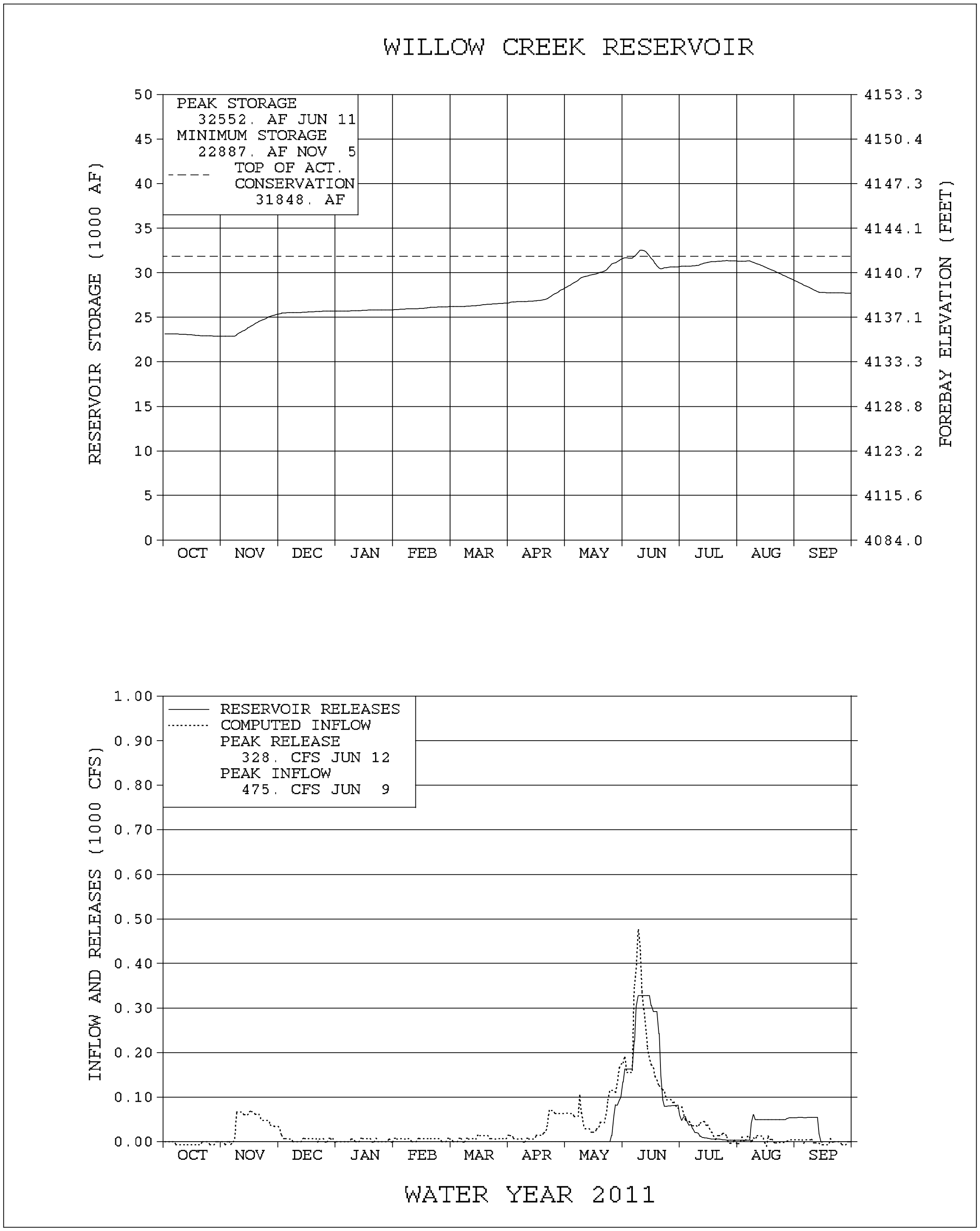
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	22,396	OCT 10-SEP 11	17,803	OCT 10-SEP 11
DAILY PEAK (CFS)	475	JUN 09, 2011	328	JUN 09, 2011
DAILY MINIMUM (CFS)	0	*	0	*

* During non-irrigation season

MONTH	INFLOW*		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	-0.2	---	0.0	---	22.9	120
NOVEMBER	2.5	321	0.0	---	25.4	129
DECEMBER	0.3	78	0.0	---	25.7	129
JANUARY	0.2	43	0.0	---	25.9	128
FEBRUARY	0.3	69	0.0	---	26.2	127
MARCH	0.1	50	0.0	---	26.6	122
APRIL	1.5	76	0.0	---	28.2	113
MAY	4.2	106	0.8	95	31.5	114
JUNE	11.2	288	12.1	375	30.7	103
JULY	1.8	334	1.1	21	31.3	134
AUGUST	0.2	---	2.4	68	29.1	157
SEPTEMBER	-0.1	---	1.3	218	27.7	159
ANNUAL	22.4	155	17.8	137		
APRIL-JULY	18.7	179				

* Average for the 1952-2011 period.

Figure MTG7:
Willow Creek Reservoir



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 Marias Unit and for flood control. The crest section of Tiber Dam 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 and completed in 1970. This construction 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 started in 1976 and completed in October 1981. This construction 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.

In 2002, Reclamation surveyed Lake Elwell to develop a topographic map and compute a present storage-elevation relationship (area-capacity tables). The data was used to calculate reservoir capacity lost due to sediment accumulation since dam closure in October of 1957. The 2002 survey determined that Lake Elwell has a storage capacity of 925,649 acre-feet and a surface area of 18,275 acres at a reservoir elevation of 2993.00. Since closure in 1957, the reservoir has accumulated a sediment volume of 42,179 acre-feet below elevation 2993.00. This volume represents a 4.4 percent change in total capacity at this elevation. The revised area-capacity table was put into effect on October 1, 2005, reflecting the new storage levels.

In September of 2003, construction of a powerplant was permitted by the Federal Energy Regulatory Commission (FERC). The river outlet works underwent extensive modification to incorporate the addition of a 7.5 MW powerplant, privately owned by Tiber Montana, LLC.

A bifurcation pipe was installed in the river outlet works tunnel at the downstream end to divert flow from the existing 72-inch outlet pipe through a bifurcation and 96-inch butterfly valve to the powerplant. Construction of the powerplant was completed and brought on-line in June 2004.

During September of 2010, both valley and mountain precipitation in the Marias River Basin above Lake Elwell was near normal. Valley precipitation was recorded at 107 percent of average while mountain precipitation was 102 percent of average. By year end, the total annual valley precipitation in the Marias River Basin was above average at 128 percent of average while the total annual mountain precipitation was below average at only 79 percent of average. The total annual runoff into Lake Elwell during 2010 was 388,323 acre-feet, 58 percent of normal and 37,431 acre-feet less than experienced in 2009. In an effort to conserve storage in Lake Elwell, releases from Lake Elwell to the Marias River were reduced to 500 cfs on September 8 which allowed storage in Lake Elwell to slowly decline to 842,438 acre-feet at elevation 2988.23 by the end of September.

At the beginning of water year 2011, precipitation in the Marias River Basin above Lake Elwell was below average. The valley precipitation during October was 41 percent of average while the mountain precipitation was 51 percent of average. During November weather conditions improved as the valley precipitation increased to 188 percent of average and the mountain precipitation increased to 76 percent of average. By the end of December the accumulated valley precipitation had reached 118 percent of average while the mountain precipitation was only 78 percent of average.

During the winter of 2010-2011, mountain snowpack in the Marias Basin above Lake Elwell began to accumulate at below normal rates until mid-November when several storms moved through the Marias River Basin, dumping large amounts of snow in the basin. Even though mountain snowpack conditions increased significantly during November, it was still below average. On December 1, NRCS measured the mountain snowpack in the Marias River Basin to be about 70 percent of average. Inflow into Lake Elwell during October-December totaled 40,736 acre-feet and was 74 percent of normal. As the winter progressed, snow continued to fall in the mountains at near normal rates but remained below average until early March.

On January 1, the NRCS reported the mountain snowpack in the Marias River Basin above Lake Elwell had improved to 84 percent of average. The January 1 water supply forecast, based on mountain snowpack, indicated the April-July runoff into Lake Elwell would be 333,000 acre-feet, which was 69 percent of normal.

On February 1, the NRCS reported the mountain snowpack in the Marias River Basin above Lake Elwell had continued to improve slightly to 89 percent of average. The February 1 water supply forecast, based on mountain snowpack, indicated the April-July runoff into Lake Elwell would be 424,000 acre-feet, which was 87 percent of normal.

On March 1, the NRCS reported the mountain snowpack in the Marias River Basin above Lake Elwell was still below average but had improved to 93 percent of average. The March 1 water supply forecast indicated the April-July runoff into Lake Elwell would be 440,000 acre-feet, which was 91 percent of average. With storage above average, it appeared Reclamation needed to increase releases to the Marias River to allow enough storage space to safely accommodate the anticipated spring snowmelt runoff and to meet target objectives. On March 11, releases to the Marias River were gradually increased to 700 cfs. Storage in Lake Elwell slowly drafted to a low content for the year of 763,664 acre-feet at elevation 2983.09 on March 11.
On April 1, the NRCS reported the mountain snowpack in the Marias River Basin above Lake Elwell had continued to improve and was reported at 105 percent of average. The water supply forecast prepared on April 1 indicated the April-July runoff into Lake Elwell was expected to be 112 percent of average, totaling 451,000 acre-feet. This was about 251,000 acre-feet more than what was forecasted a year ago. Once again, it appeared necessary for Reclamation to increase releases to the Marias River in order to meet target objectives. On April 7, releases to the Marias River were gradually increased to 1,050 cfs.

Several spring storms frequented the Marias River Basin in April, dumping large amounts of snow in the mountains. By April 19, snowpack in the Marias River Basin upstream of Lake Elwell had increased to 127 percent of average. To allow enough storage space to safely accommodate the anticipated spring snowmelt runoff, releases to the Marias were increased to 1,290 cfs. Snowpack upstream of Lake Elwell continued to increase and was measured at 139 percent of average on April 25. In order for Reclamation to meet target objectives, releases to the Marias River were increased to 1,975 cfs.

Temperatures remained cooler than normal during April and May which delayed the start of the snowmelt runoff. Snowpack continued to increase and by May 1, the NRCS reported the snow water content of the snowpack above Lake Elwell had increased to 150 percent of average. With storage at 111 percent of average, the May 1 water supply forecast indicated May-July runoff into Lake Elwell would be 583,000 acre-feet, which was 138 percent of average. It was not until the middle of May that the snowmelt runoff actually began to enter Lake Elwell. Heavy rains accompanied by warm temperatures caused streamflows to increase considerably. To control the rate of fill, releases to the Marias River were increased to 2,545 cfs on May 13. The large reservoirs on the main stem of the Missouri River which are owned and operated by the Army Corps of Engineers (Corps) were experiencing record inflows causing available storage space to be quickly depleted. On May 21, the Corps called for replacement storage at Lake Elwell to aid with the high water problems downstream on the Missouri River below Fort Peck. On May 25, releases from Lake Elwell to the Marias River were decreased to 520 cfs.

By June 1, storage in Lake Elwell had increased to 890,331 acre-feet at elevation 2991.04. This was 112 percent of average and the third highest level ever recorded on this date. The NRCS reported snowpack conditions in the watershed above Lake Elwell to be 250 percent of average. The June 1 water supply forecast indicated the June-July runoff into Lake Elwell would be 393,000 acre-feet which is 155 percent of average. By June 4, storage in Lake Elwell had reached the top of the joint-use pool and began to enter the exclusive flood pool.

To control the rate of fill and continue to assist the Corps by providing replacement storage at Lake Elwell, releases to the Marias River were increased to 725 cfs on June 7. With the rains accompanying the mountain snowmelt runoff, inflows to Lake Elwell quickly increased until reaching a peak for the year of 19,012 cfs on June 10. This was the fourth highest daily peak inflow ever recorded into Lake Elwell since construction of the dam in 1957.

As the heavy rains around the state began to diminish, the downstream tributary flows also began to recede. To control the rate of fill in Lake Elwell, releases were increased to 1,500 cfs on June 10. Again heavy precipitation caused high inflows into Fort Peck and other areas along the Missouri river downstream of Fort Peck to remain high. To continue to provide replacement storage at Lake Elwell, releases to the Marias River were decreased to 740 cfs on June 15.

In July, weather conditions again changed. Precipitation dropped to well below average while temperatures returned to near average.

The valley and mountain precipitation was only 47 and 70 percent of average, respectively. Even though precipitation was well below average during July, the residual effects of the delayed snowmelt runoff seemed to maintain the inflow into Lake Elwell during July at 258 percent of average, totaling 126,495 acre-feet. This was the second highest July of record experienced into Lake Elwell and 56,344 acre-feet lower than the record experienced in 1975.

During July, inflows into Fort Peck Reservoir and other areas along the Missouri River downstream of Fort Peck Reservoir continued to recede. To control the runoff into Lake Elwell and the rate of fill of storage in the exclusive flood control pool, releases from Lake Elwell to the Marias River were gradually increased beginning on July 14 to the peak for the year of 2,842 cfs on August 23. On July 19, storage in Lake Elwell reached a new historic high and a peak content for the year of 1,303,858 acre-feet at elevation 3011.42. About 94 percent of the exclusive flood control space was used in Lake Elwell to help control the high runoff in the Marias River Basin upstream of Lake Elwell in 2011.

The April-July runoff into Lake Elwell during 2011 was 187 percent of average, totaling 795,864 acre-feet. This was the third highest April-July ever recorded and was 528,266 acre-feet more than the April-July inflow experienced in 2010. The total annual inflow to Lake Elwell was 174 percent of average, totaling 989,970 acre-feet. This was the second highest yearly inflow of record experienced into Lake Elwell and 601,646 acre-feet greater than the total annual inflow experienced in water year 2010.

Both the valley and mountain precipitation in the Marias River Basin above Lake Elwell remained below normal during August, and September. Valley precipitation was recorded at 16 and 41 percent of average, respectively, while mountain precipitation was 2 and 52 percent of average, respectively. By year end, both the total annual valley precipitation and the total annual mountain precipitation were near average at 95 and 102 percent of average, respectively.

By the end of the year, normal operations of Lake Elwell drafted storage to 990,144 acre-feet at an elevation of 2996.45 feet. This was 126 percent of normal, 8.22 feet higher than reported on September 30, 2010, 3.45 above the top of the joint use pool and the highest level ever recorded on that date since construction of the dam.

The Corps determined that during 2011 Lake Elwell prevented $134,900 of local flood damages and also prevented $13,776,800 in flood damages downstream on the Missouri River below Fort Peck Reservoir. Since closure of Tiber Dam in 1954, Lake Elwell has reduced flood damages by a total of $92,517,400.00.

Important Events in Water Year 2011

November 1-December 2, 2010: To allow Tiber Montana Company, L.L.C., to replace the turbine runner in their powerplant, flows were maintained at the current rate of 515 cfs but were switched from the powerplant to the auxiliary outlet works.

December 1, 2010: NRCS reported snowpack conditions in the watershed above Lake Elwell were 70 percent of normal.

December 2, 2010: Tiber Montana Company, L.L.C., completed replacement of the turbine runner in their powerplant. Prior to switching flows from the auxiliary outlet works to the river outlet works, Reclamation conducted an unbalanced test on the guard gates. Flows were than maintained at 500 cfs through the river outlet works.

December 8, 2010: To allow Tiber Montana, L.L.C., to conduct an efficiency test of their turbine unit, releases from Lake Elwell were decreased through the river outlet works from 500 cfs to 175 cfs and initiated at 350 cfs through the powerplant penstock. Flows were held at that rate for 30 minutes before being increased by 50 cfs every 30 minutes until reaching 500 cfs through the powerplant penstock. Flows were then discontinued through the river outlet works and increased by 50 cfs every 30 minutes until reaching 750 cfs. Flows were then returned to the previous rate of 500 cfs and maintained through the powerplant penstock.

January 1, 2011: NRCS reported snowpack conditions in the watershed above Lake Elwell were about 84 percent of normal. The January water supply forecast indicates the April-July runoff into Lake Elwell would be 333,000 acre-feet which is 69 percent of normal.

February 1, 2011: NRCS reported snowpack conditions in the watershed above Lake Elwell were about 89 percent of normal. The February water supply forecast indicates the April-July runoff into Lake Elwell would be 424,000 acre-feet which was 87 percent of average.

March 1, 2011: NRCS reported snowpack conditions in the Marias River Basin upstream of Lake Elwell were about 93 percent of average. The March water supply forecast indicates the April-July runoff into Lake Elwell would be 440,000 acre-feet which is 91 percent of normal.

March 11, 2011: Snowpack in the Marias River Basin upstream of Lake Elwell is 104 percent of average. To allow enough storage to safely accommodate the anticipated spring snowmelt runoff, releases to the Marias River were increased to 700 cfs.

March 11, 2011: Storage in Lake Elwell reaches the minimum elevation for the year of 2983.09.

April 1, 2011: NRCS reported snowpack conditions in the watershed above Lake Elwell were 105 percent of normal. Water supply forecast indicated the April-July runoff into Lake Elwell would be 451,000 acre-feet or 112 percent of normal.

April 7, 2011: Snowpack in the Marias River Basin upstream of Lake Elwell is 113 percent of average. To allow enough storage to safely accommodate the anticipated spring snowmelt runoff, releases were initiated through the spillway and the total release to the Marias River was increased to 1,050 cfs.

April 13, 2011: Personnel from the Reservoir and River Operations Branch met with the Marias Management Committee to present and discuss the projected water supply for the Marias River Basin and proposed operations of Lake Elwell.

April 19, 2011: Snowpack in the Marias River Basin upstream of Lake Elwell is 127 percent of average and storage is above average at 114 percent of average. To allow enough storage to safely accommodate the anticipated spring snowmelt runoff, releases were increased through the spillway and the total release to the Marias River was increased to 1,290 cfs.

April 25, 2011: Snowpack in the Marias River Basin upstream of Lake Elwell is 139 percent of average and storage is above average at 114 percent of average. To allow enough storage to safely accommodate the anticipated spring snowmelt runoff, releases were increased through the spillway and the total release to the Marias River was increased to 1,975 cfs.

May 1, 2011: NRCS reported snowpack conditions in the watershed above Lake Elwell were 150 percent of average. The May 1 water supply forecast indicates the May-July runoff into Lake Elwell would be 583,000 acre-feet which is 138 percent of normal.

May 13, 2011: Snowpack in the Marias River Basin upstream of Lake Elwell is 176 percent of average and storage is above average at 106 percent of average. Rains and warm temperatures have produced increases to streamflows into Lake Elwell. To control the rate of fill, releases were increased through the spillway and the total release to the Marias River was increased to 2,545 cfs.

May 21, 2011: The Corps of Engineers has called for replacement storage at Tiber Reservoir to aid with the high water problems downstream on the Missouri River below Fort Peck. Flows were decreased through the spillway and the total release to the Marias River was decreased to 1,000 cfs.

May 25, 2011: Heavy precipitation occurred over much of Montana causing high inflows into Fort Peck Reservoir and other areas along the Missouri River downstream of Fort Peck Reservoir. The Corps of engineers has requested replacement storage at Tiber Reservoir to effectively replace a portion of the annual flood control and multiple-use space provided in the main stem system. Releases were discontinued through the spillway and the total release to the Marias River was decreased to 520 cfs.

June 1, 2010: NRCS reported snowpack conditions in the watershed above Lake Elwell were 250 percent of average. The June 1 water supply forecast indicates the June-July runoff into Lake Elwell would be 393,000 acre-feet which is 155 percent of normal.

June 7, 2011: Precipitation has caused inflows into Lake Elwell to increase significantly. To control the rate of fill and continue to assist the Corps of Engineers by providing replacement storage at Lake Elwell, total release to the Marias River was increased to 725 cfs.

June 10, 2011: Precipitation has caused inflows into Lake Elwell to increase significantly to a peak for the year of 19,012 cfs. To control the rate of fill and continue to assist the Corps of Engineers by providing replacement storage at Lake Elwell, releases were initiated through the spillway and the total release to the Marias River was increased to 1,500 cfs.

June 15, 2011: Heavy precipitation caused high inflows into Fort Peck Reservoir and other areas along the Missouri River downstream of Fort Peck Reservoir to continue to remain high. The Corps of engineers has requested replacement storage at Tiber Reservoir to effectively replace a portion of the annual flood control and multiple-use space provided in the main stem system. Releases were discontinued through the spillway and the total release to the Marias River was decreased to 740 cfs.

July 14, 2011: Inflows into Fort Peck Reservoir and other areas along the Missouri River downstream of Fort Peck Reservoir continue to recede. To slowly begin evacuating storage from the exclusive flood pool, releases were initiated through the spillway and the total release to the Marias River was increased to 1,500 cfs.

July 19, 2011: Storage in Lake Elwell reaches a new historic high and the maximum elevation for the year of 3011.42.

July 19-20, 2011: To control the rate of fill, releases from Lake Elwell to the Marias River were gradually increased to 2,500 cfs.

July 25, 2011: To control the rate at which storage is evacuated from the exclusive flood pool, releases from Lake Elwell to the Marias River were gradually increased to 2,750 cfs.

August 1, 2011: Recent streamflow measurements made by the Geological survey indicate actual flows in the Marias River are lower than anticipated. To adjust for this variation in flows and continue to evacuate storage from the exclusive flood pool, releases were increased to 2,750 cfs.

August 23, 2011: Releases to the Marias River reach a peak for the year of 2,842 cfs.

September 24, 2011: To allow Tiber Montana, L.L.C., to conduct an efficiency test of their turbine unit, releases through the powerplant penstock were decreased from 750 cfs to 550 cfs and held for 15 minutes; then increased 50 cfs every 15 minutes until reaching 650 cfs and then returned to the current rate of 750 cfs.

Additional hydrologic and statistical information pertaining to the operation of Lake Elwell during 2011 can be found in Table MTT9 and Figure MTG8.

Table MTT9:
Hydrologic Data for Water Year 2011
Lake Elwell (Tiber Dam)

NEW SEDIMENT SURVEY DATA EFFECTIVE 10/01/2005

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2966.40	554,330	554,330
TOP OF ACTIVE CONSERVATION	2976.00	667,213	112,883
TOP OF JOINT USE	2993.00	925,649	258,436
TOP OF EXCLUSIVE FLOOD CONTROL	3012.50	1,328,723	403,074

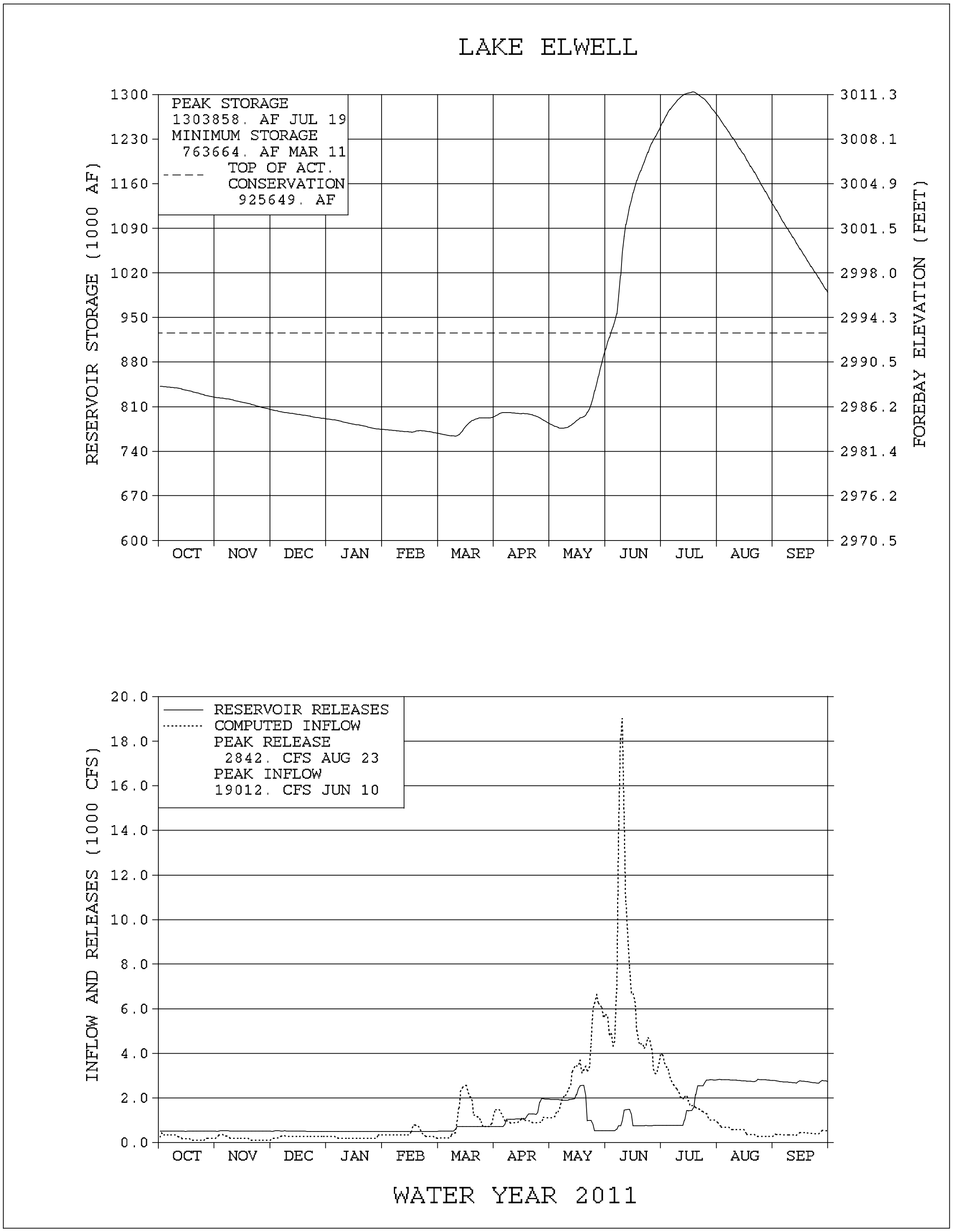
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2988.23	842,438	OCT 01, 2010
END OF YEAR	2996.45	990,144	SEP 30, 2011
ANNUAL LOW	2983.09	763,664	MAR 11, 2011
ANNUAL HIGH	3011.42	1,303,858	JUL 19, 2011
HISTORIC HIGH	3011.42	1,303,858	JUL 19, 2011

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	989,970	OCT 10-SEP11	842,264	OCT 10-SEP 11
DAILY PEAK (CFS)	19,012	JUN 10, 2011	2,843	AUG 23, 2011
DAILY MINIMUM (CFS)	93	OCT 18, 2010	488	NOV 01, 2010
PEAK SPILL (CFS)			x	xxxx
TOTAL SPILL (AF)			x	xxxx

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	13.4	75	31.2	71	824.7	110
NOVEMBER	11.1	56	30.2	86	805.6	111
DECEMBER	16.2	94	31.0	111	790.8	112
JANUARY	14.0	89	30.6	117	774.2	113
FEBRUARY	22.5	109	27.6	108	769.1	115
MARCH	63.3	136	39.3	113	793.0	118
APRIL	62.4	111	69.9	157	785.6	112
MAY	204.4	145	99.6	151	890.3	112
JUNE	402.5	258	49.1	52	1,243.7	134
JULY	126.5	258	99.7	133	1,270.5	140
AUGUST	29.2	189	172.0	287	1,127.8	134
SEPTEMBER	24.3	192	162.0	310	990.1	126
ANNUAL	990.0	174	842.3	144		
APRIL-JULY	795.9	187				

* Average for the 1957-2011 period.

Figure MTG8:
Lake Elwell (Tiber Dam)



MILK RIVER PROJECT

The 117,000-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 Fort Belknap Indian Irrigation Project.

Lake Sherburne

Lake Sherburne 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 66,147 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 has 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.

In 2002, Reclamation surveyed Lake Sherburne to develop a topographic map and compute a present storage-elevation relationship (area-capacity tables). The data was used to calculate reservoir capacity lost due to sediment accumulation since dam closure in 1919. The 2002 survey determined that Lake Sherburne has a storage capacity of 66,147 acre-feet and a surface area of 1,719 acres at a reservoir elevation of 4788.00. Since Lake Sherburne closure in 1919, the measured total volume change at reservoir elevation 4788.00 was estimated to be 343 acre-feet between the 1948 and 2002 surveys and 1,707 acre-feet between the 1983 and 2002 surveys. It is assumed the volume differences between the surveys are due to survey methods and the vertical datum. The revised area-capacity table was put into effect on October 1, 2005, reflecting the new storage levels.

Water year 2010 provided below average mountain precipitation and near average precipitation in the valley areas of the St. Mary River Basin. The latter part of the water year produced above average conditions in the mountain and valley areas, with July and August mountain precipitation being the only exception. Valley areas for August and September were 124 and 137 percent of average respectively, while mountain areas were 90 and 169 percent of average respectively. With precipitation above average during September, the inflow to Lake Sherburne the inflows also remained well above average at 182 percent of average totaling 12,666 acre-feet.

With inflows above average and releases being made until September 24, reservoir levels continued to decrease until midway through September. On September 30, storage in Lake Sherburne totaled 30,888 acre-feet, 368 percent of average and 47 percent of normal full capacity, at elevation 4763.48. Releases out of Lake Sherburne and diversions to the St. Mary Canal were both discontinued on September 24, 2010, and remained shut off until spring of 2011.

The new water year began with below average precipitation in October in both valley and mountain areas. Cumulative valley precipitation from October to the end of December was 91 percent of average. During the same period, cumulative mountain precipitation was 87 percent of average. Inflows during October through December were 93, 122 and 106 percent of average, respectively. This resulted in storage at the end of December of 47,696 acre-feet, 274 percent of average.

On January 1, the NRCS reported mountain snowpack in the St. Mary Basin was 94 percent of normal. With near normal snowpack, it appeared the droughty conditions in the St. Mary and Milk River Basins was diminishing. Precipitation in the valley and in the mountains was above average during January and resulted in the February 1 snowpack for the St. Mary Basin rising to 108 percent of average. Storm patterns continued during February with precipitation in the valleys, and mountains barely continued to climb. By March 1, snowpack for the St. Mary Basin was reported to be at 111 percent of average. Total inflow during January through March was approximately 7,500 acre-feet, 87 percent of average.

Diversions into the St. Mary Canal in the spring, generally begins as soon as weather conditions allow. During mild years, this can be as early as March. In 2011, the above average storage in Fresno Reservoir and near average storage in Nelson Reservoir indicated that irrigation water would not be needed very early in the season, thus delaying the normal St. Mary diversions to the Milk River Basin. By the middle of March, storage in Lake Sherburne was nearly 220 percent of average. In response, releases out of Lake Sherburne were initiated at a rate of 100 cfs on March 14. Due to the significant amount of prairie snow throughout the Milk River Basin and the high storage levels in the reservoir, it was not necessary to make releases out of Lake Sherburne to divert to the Milk River Basin. Instead, releases out of Lake Sherburne were still made to continue evacuating storage in Lake Sherburne. All of this water was excess water released to Canada. Diversions to the St. Mary Canal were initiated on July 21. With the late startup, the Joint Board of Control and the Babb staff used the opportunities to repair the chute on Drop 4 during favorable July weather, instead of making the repairs in the late fall and early winter. St. Mary Canal flows were gradually increased to near 600 cfs.

The recorded valley and mountain precipitation during March was above average. By April 1 mountain snow water content had increased considerably to 123 percent of average. The snow pack peaked on April 30, slightly later than normal at 152 percent of average. The April 1 water supply forecast for April through July runoff indicated that the runoff would be 118,000 acre-feet, 113 percent of normal.

Once releases were started, storage decreased until May 11 when precipitation events started to take place throughout the entire St. Mary and Milk Basins. Sherburne releases were held steady throughout the spring to control the runoff from the basin, allowing the reservoir to fill to near full pool in mid-July.

The reservoir was intentionally prevented from reaching full pool as due to the retirement of Leroy Grant no staff was currently stationed at Camp 9. Staff from Fresno would have to make trips to the dam if changes needed to be made. For this reason operations were handled in a fashion to try to keep the dam 1 foot below the spillway.

Diversions to the St. Mary Canal averaged 0 cfs during April through June as the diversions were not initiated until late July. Releases from Lake Sherburne were held stable near 400 during April and in late May increased to near 550 cfs to control the inflows to the reservoir in a stable fashion. Between July 7 and July 14 releases were increased to try to control the rate of fill as the reservoir was nearly full and this would prevent releases through the spillway. Overall precipitation for April was above average, and remained that way through June. Cooler temperatures during these months allowed the snowpack to melt out at a slower rate and therefore extended the runoff season.

The snowmelt runoff was essentially melted out by late-July, which is slightly later than normal compared to the long term average. Lake Sherburne storage peaked on July 22 at 65,204 acre-feet, at elevation 4787.45, 0.55 feet below the top of normal full capacity. The peak inflow for the year was 1,404 cfs which occurred on June 30, and the July inflow of 41,900 acre-feet was the highest of record. The actual April through July runoff was 130 percent of average, totaling 134,800 acre-feet.

Storms during July brought near average precipitation to the mountain regions and below average precipitation to valley regions. Mountain precipitation was below average during August and September. The cumulative precipitation through the end of September for valley and mountain areas was 106 and 103 percent of average, respectively. Inflows during June, July, August, and September, were 147, 206, 143 and 96 percent of average, respectively. Inflow for the water year totaled 179,000 acre-feet, 126 percent of average. This was 56,100 acre-feet or 34 percent more than the inflow experienced during water year 2010. Storage on September 30, 2011, was 21,626 acre-feet, 258 percent of normal.

According to preliminary data, diversions from the St. Mary River to the Milk River totaled 58,803 acre-feet, 39 percent of the long-term average. The long-term average annual diversion is 150,500 acre-feet and the 1972-2002 average is 168,900 acre-feet. The largest diversion previously recorded was 277,500 acre-feet during 1989. Canal diversions were discontinued on October 6, and releases from Lake Sherburne were discontinued for water year 2011 on October 17, slightly into water year 2012.

During the 2011 irrigation season, there was one conference call held with the International Joint Commission Field Representatives to discuss accumulated deficits by the United States and Alberta, Canada on the St. Mary and Milk Rivers, respectively.

During the call held on July 13, there were concerns that there was too much water in the basin rather than too little. No further calls were scheduled as the outlook for both basins was that there would be no deficits on either side.

During 2011, Lake Sherburne did not contribute to the reduction of flood damages locally or downstream on the Missouri River below Fort Peck Reservoir. Since 1950 Lake Sherburne has prevented $7,946,500 in flood damages.

Additional hydrologic and statistical information pertaining to the operation of Sherburne Reservoir during 2011 can be found in Table MTT10-A and Figure MTG9.

Fresno Reservoir

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 32,534 acre-feet is used jointly for flood control and conservation and is not filled until the start of the spring runoff. Fresno Reservoir 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 suitable water for municipal use. The city of Harlem and the Hill County Water District have also contracted for municipal use.

During water year 2010, there was relief to the drought conditions in the Milk River Basin. Cumulative precipitation was 128 percent of normal at the end of September. Inflow into Fresno Reservoir during September was 16,200 acre-feet, 62 percent of average. As irrigation wound down for the year, Fresno Reservoir was continuing the drawdown for the water year and concluded ending with storage of 76,344 acre-feet, 191 percent of normal to begin water year 2011. On September 23, releases for irrigation for the Milk River Project users were discontinued, but releases for the Fort Belknap Indian Irrigation Project (FBIIP) were still needed. Therefore, Fresno Reservoir releases were maintained at approximately 75 cfs to satisfy the FBIIP demand. Releases from Fresno Reservoir were remained at that level until late February of water year 2011 due to the high runoff levels. Precipitation during the start of water year 2011 was below average; however, as the winter progressed, precipitation patterns changed and rates were significantly higher than average until July. The accumulated precipitation from October through March was 179 percent of normal.

Reservoir inflows were above average from October until December, which resulted in maintaining higher winter flows from the reservoir to keep the elevation from climbing. The end of December storage was 66,200 acre-feet, 177 percent of average.

By January 1, the NRCS reported the snowpack in the Milk River Basin was 134 percent of average, coinciding with the above average fall precipitation in the mountains. These same precipitation trends continued during January resulting in a monthly total of an astounding 278 percent of average.

By February 1, the NRCS reported snowpack had increased, producing a March through July runoff forecast for Fresno Reservoir of 102,000 acre-feet, 122 percent of average.

Storage at the end of February was 69,700 acre-feet, 196 percent of average. In the Milk River Basin, the spring runoff season generally occurs from March through June. Therefore, the peak snowpack and most reliable water supply runoff forecast for the Milk River Basin is generally considered to be around the first of March. During 2011, the precipitation in February was above average, resulting in the snowpack in the Milk River Basin to also be above average. On March 1, the snowpack was reported at 217 percent of average. Based on the March 1 water supply forecast, the March-July runoff into Fresno Reservoir was expected to be 158 percent of average or equal to 132,000 acre-feet. Based on this forecast, storage in Fresno Reservoir was expected to easily fill to the top of the conservation pool at elevation 2575.

When the runoff below Fresno Reservoir began in mid March, diversions to Nelson Reservoir were initiated. Diversion into Nelson Reservoir began on March 30. Due to the good carryover storage in Fresno Reservoir, and Lake Sherburne, as well as above average precipitation in April, Nelson Reservoir was filled and excess water was delivered to Bowdoin National Wildlife Refuge (Bowdoin). Other excess water was used to flush canals, and help wet canal perimeters before demands took hold. This time period was before releases were adjusted from Fresno Reservoir for significant irrigation demands.

During the first rush of water to Fresno Reservoir which took place March 18 inflows shot from near 300 cfs to almost 3500 cfs causing the reservoir to use its flood control storage very rapidly. Releases and storage were able to handle the rush of water, but by the 25 of March releases were increased to 800 cfs, and the reservoir continued to fill until it reached the spillway on April 6. At that point the outlet works were shut and all releases were made through the ungated spillway.

From the confluence of Beaver Creek with the Milk River all the way to the confluence with the Missouri River the water was high all spring and through mid summer. The prairie snow in southern Canada and northeastern Montana was at levels that will not be soon forgotten. Luckily, the warm-up was slow coming, but it also meant that the flows stayed high for an extended period of time. Throughout the late spring and early summer the flows on some of the tributaries were greater than the flow from the mainstem of the Milk River.

By May 1, cumulative valley precipitation was 179 percent of normal. This resulted in the above average natural inflow to Fresno Reservoir to continue. The natural inflow during these months kept storage in the flood pool where it would remain until July 1. During May and June, precipitation patterns increased and inflows to Fresno were occurring from natural runoff, since diversions into the St. Mary Canal were not started until July 21.

The initial meeting of the Milk River Joint Board of Control (MRJBC) regarding water supply was held in April at which time the allotment was set at 2.3 acre-feet/acre.

Once again, Fresno Reservoir storage was able to remain at good levels through the summer months. Spillway releases were made from Fresno from April 6 until July 1. The peak release of 3,293 cfs from Fresno was made on June 13 after a large storm produced significant amounts of rain which helped melt out the remaining prairie snow. The storage in Fresno Reservoir peaked at 108,135 acre-feet at elevation 2577.91 or 2.91 feet above the spillway crest on June 12.

The average releases for June and July were 1,845 cfs and 445 cfs. The actual March through July inflow for Fresno Reservoir, excluding St. Mary Canal water was approximately 315.8 acre-feet, 164 percent of average based on the United States Geological Survey (USGS) computation for natural flow at the Milk River at Eastern Crossing gauging station. Inflow to Fresno Reservoir peaked during this time at 3,823 cfs, on June 11.

The cumulative precipitation through the end of June was 167 percent of average, however, as the summer continued the precipitation patterns allowed for a reprieve from the high flows. July and August valley precipitation were 73 and 62 percent of average, respectively. Total inflow for the year was 390.4 acre-feet, 153 percent of average. This was the highest runoff year of the record back to 1950. Diversions from the St. Mary River Basin to the Milk River Basin accounted for about 15 percent of the inflow to Fresno Reservoir during 2011. Releases were reduced to 75 cfs on September 22, allowing storage to be slowly drafted to 49,274 acre-feet at elevation 2563.20 on September 30, 124 percent of average and 53 percent of normal full capacity. Winter releases were later increased and set at approximately 90 cfs to control storage in Fresno Reservoir and reach the desired spring flood control target level at elevation 2567.

The Corps determined that during 2011, Fresno Reservoir prevented $476,200 in local flood damages, but did not contribute to the reduction of flood damages downstream on the Missouri River below Fort Peck Reservoir. Since 1950 Fresno Dam and Reservoir has reduced flood damages by a total of $14,721,700.

Additional hydrologic and statistical information pertaining to the operation of Fresno Reservoir during 2011 can be found in Table MTT10-B and Figure MTG10.

Nelson Reservoir

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. In 1999 a sediment re-survey was performed and then finalized during 2000-01.

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Since Nelson Reservoir operation began in 1916, the measured total volume loss due to sedimentation was 446 acre-feet. The new revised elevation-area capacity data was implemented at the beginning of water year 2002. Nelson Reservoir now has a total capacity of 78,950 acre-feet and an active capacity of 60,810 acre-feet.

At the end of water year 2010, releases from Fresno Reservoir to satisfy the FBIIP irrigation demand were made during September. This allowed diversions to Nelson Reservoir to continue until the end of September. Therefore, storage increased during September and Nelson Reservoir began the 2011 water year with a storage content of 77,488 acre-feet, at elevation 2221.26, 132 percent of average and 98 percent of normal full capacity. Storage slowly decreased due to seepage through the winter until mid March.

Diversions to Nelson Reservoir began in late March. The total inflow prior to irrigation season, March 19 through July 13, was approximately 33,000 acre-feet. Of that amount diverted approximately 21,000 acre feet were released directly back to the Milk River through the north outlet works. The water was brought through the canal to ease water levels through Malta. Irrigation releases from Nelson Reservoir began on July 13 through the Nelson South Canal and continued though September 27. Since much of the demand from Malta Irrigation District is for early irrigation, releases are generally discontinued in mid-June for harvest. This was not the case this year as diversions were not initiated for irrigation due to the ample rain that fell throughout the spring and early summer.

From early April, storage steadily increased until mid-April when the reservoir reached full pool. Storage in Nelson Reservoir peaked for the summer at 78,216 acre-feet at elevation 2221.43 on May 26, which was approximately 0.17 ft below normal full pool. Storage was then maintained between 2219.3 and 2220.7 through the end of the water year. The district actually preferred to keep the reservoir about a foot below full pool to reduce the wave action on the dikes.

During 2011, piping plovers were not observed nesting on the shores of Nelson Reservoir. Biologists did some surveys looking for nests, but due to the high reservoir levels throughout the summer little to no desired nesting habitat was available for the birds.

Inflows to Nelson Reservoir during June through July totaled approximately 14,000 acre-feet. Releases to the Milk River were made for use by Glasgow Irrigation District and to control the reservoir elevation intermittently from May through September. No additional water had to be released for Glasgow this year. In September, irrigation releases were discontinued and inflows to the reservoir were discontinued as the reservoir had remained at near full pool all summer. Water that was diverted into Nelson Reservoir during August through September totaled approximately 18,000 acre-feet. Total net inflow to Nelson Reservoir during water year 2011 was -2,411 acre-feet. Storage on September 30, 2011 was 75,077 acre-feet at elevation 2220.69, 132 percent of average and 97 percent of normal full capacity.

Additional hydrologic and statistical information pertaining to the operation of Nelson Reservoir during 2010 can be found in Table MTT10-C and Figure MTG11.

Important Events in Water Year 2011

February 28, 2011: Releases from Fresno Reservoir initiated for flood control in preparation for the anticipated spring snowmelt runoff.

March 1, 2011: Milk River runoff forecast indicates spring runoff to be 158 percent of average.

March 14, 2011: Releases begin from Lake Sherburne.

April 1, 2011: Lake Sherburne runoff forecast indicates spring runoff to be 113 percent of average.

April 6, 2011: Fresno Reservoir fills and begins spilling water over the ungated spillway, due to high natural runoff.

April 20, 2011: MRJBC sets the irrigation allotment to 2.3 acre-feet per acre.

May 26, 2011: Storage in Nelson Reservoir reached peak content for the year of 78,216 acre-feet at elevation 2221.43, 0.17 ft below normal full pool.

June 11, 2011: Inflow to Fresno Reservoir peaked at 3,823 cfs.

June 12, 2011: Storage in Fresno Reservoir reached peak content for the year of 108,135 acre-feet at elevation 2577.91, 2.91 feet above normal full pool.

June 30, 2011: Inflow to Lake Sherburne peaked at 1,404 cfs.

July 13, 2011: Irrigation releases are initiated from Nelson Reservoir.

July 13, 2011: A conference call was held with the IJC Field Representatives to discuss St. Mary and Milk River apportionments.

July 22, 2011: Storage in Lake Sherburne reached a peak content for the year of 65,204 acre-feet, at elevation 4787.45, 0.55 feet below normal full pool.

July 21, 2011: St. Mary Canal begins to divert water to the Milk River.

October 6, 2011: St. Mary Canal diversions are discontinued.

October 17, 2011: Lake Sherburne releases are discontinued.

November 1, 2011: Releases from Nelson Reservoir are discontinued, the reservoir level had finally stabilized and the North Outlet works releases were shut off.

November 1, 2011: Releases from Fresno Reservoir are set at approximately 90 cfs for the duration of the winter, due to high inflows and above average storage. The release of 90 cfs was set to meet the spring flood control target.

Table MTT10-A:
Hydrologic Data for Water Year 2011
Sherburne Reservoir (Milk River Project)
NEW SEDIMENT SURVEY DATA EFFECTIVE 10/01/2005

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4729.30	1,899	1,899
TOP OF ACTIVE CONSERVATION	4788.00	66,147	64,248

STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4763.48	30,888	OCT 01, 2010
END OF YEAR	4754.93	21,626	SEP 30, 2011
ANNUAL LOW	4757.99	24,802	MAY 11, 2011
ANNUAL HIGH	4787.45	65,204	JUL 22, 2011
HISTORIC HIGH	4788.30	68,371	JUN 30, 1986

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	178,970	OCT 10-SEP 11	188,226	OCT 10-SEP 11
DAILY PEAK (CFS)	1,404	JUN 30, 2011	766	JUL 10, 2011
DAILY MINIMUM (CFS)	3	MAR 26, 2011	0	*

* During non-irrigation season

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	5.6	93	0.0	---	36.5	388
NOVEMBER	7.6	122	0.0	---	44.1	324
DECEMBER	3.7	106	0.0	---	47.8	273
JANUARY	3.7	123	0.0	---	51.5	255
FEBRUARY	2.1	90	0.0	---	53.5	237
MARCH	1.7	52	6.3	140	49.0	218
APRIL	4.1	41	23.7	159	29.4	156
MAY	30.4	96	27.1	137	32.7	112
JUNE	58.4	147	35.0	187	56.1	107
JULY	41.9	206	35.1	140	62.9	131
AUGUST	13.7	143	34.8	107	41.9	178
SEPTEMBER	6.0	96	26.3	122	21.6	258
ANNUAL	179.0	126	188.2	133		
APRIL-JULY	134.8	130				

* Average for the 1955-2011 period.

Figure MTG9:
Lake Sherburne

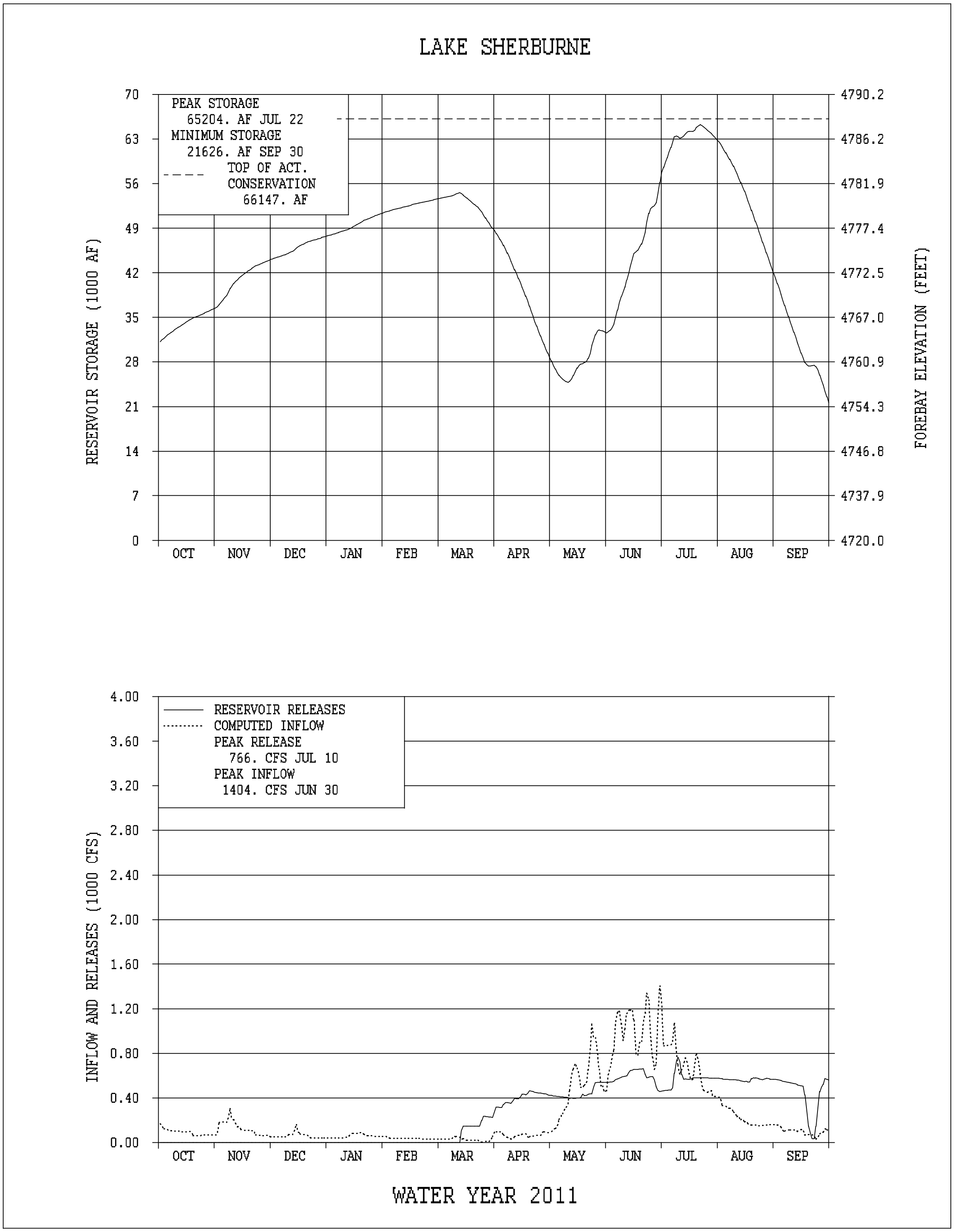


Table MTT10-B:
Hydrologic Data for Water Year 2011
Fresno Reservoir (Milk River Project)

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	2571.33	76,344	OCT 01, 2010
END OF YEAR	2563.20	49,274	SEP 30, 2011
ANNUAL LOW	2560.31	41,991	SEP 15, 2011
ANNUAL HIGH	2577.91	108,135	JUN 12, 2011
HISTORIC HIGH	2579.35	154,023	APR 03, 1952

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	390,429	OCT 10-SEP 11	417,499	OCT 10-SEP 11
DAILY PEAK (CFS)	3,823	JUN 11, 2011	3,293	JUN 13, 2011
DAILY MINIMUM (CFS)	8	JUL 29, 2011	47	OCT 21, 2010

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	6.4	99	12.1	163	70.7	180
NOVEMBER	5.0	279	8.3	262	67.4	174
DECEMBER	4.8	598	6.0	224	66.2	177
JANUARY	3.4	493	5.7	218	64.0	179
FEBRUARY	10.8	316	5.1	206	69.7	196
MARCH	43.2	147	27.1	400	85.8	163
APRIL	81.3	253	68.0	331	99.1	140
MAY	81.5	187	74.5	157	104.1	159
JUNE	100.2	211	110.4	223	93.9	151
JULY	9.6	28	27.4	50	76.1	171
AUGUST	15.9	50	47.0	104	45.1	121
SEPTEMBER	28.3	120	24.1	109	49.3	124
ANNUAL	390.4	153	417.5	157		
APRIL-JULY	272.5	164				

* Average for the 1949-2011 period.

Figure MTG10:
Fresno Reservoir

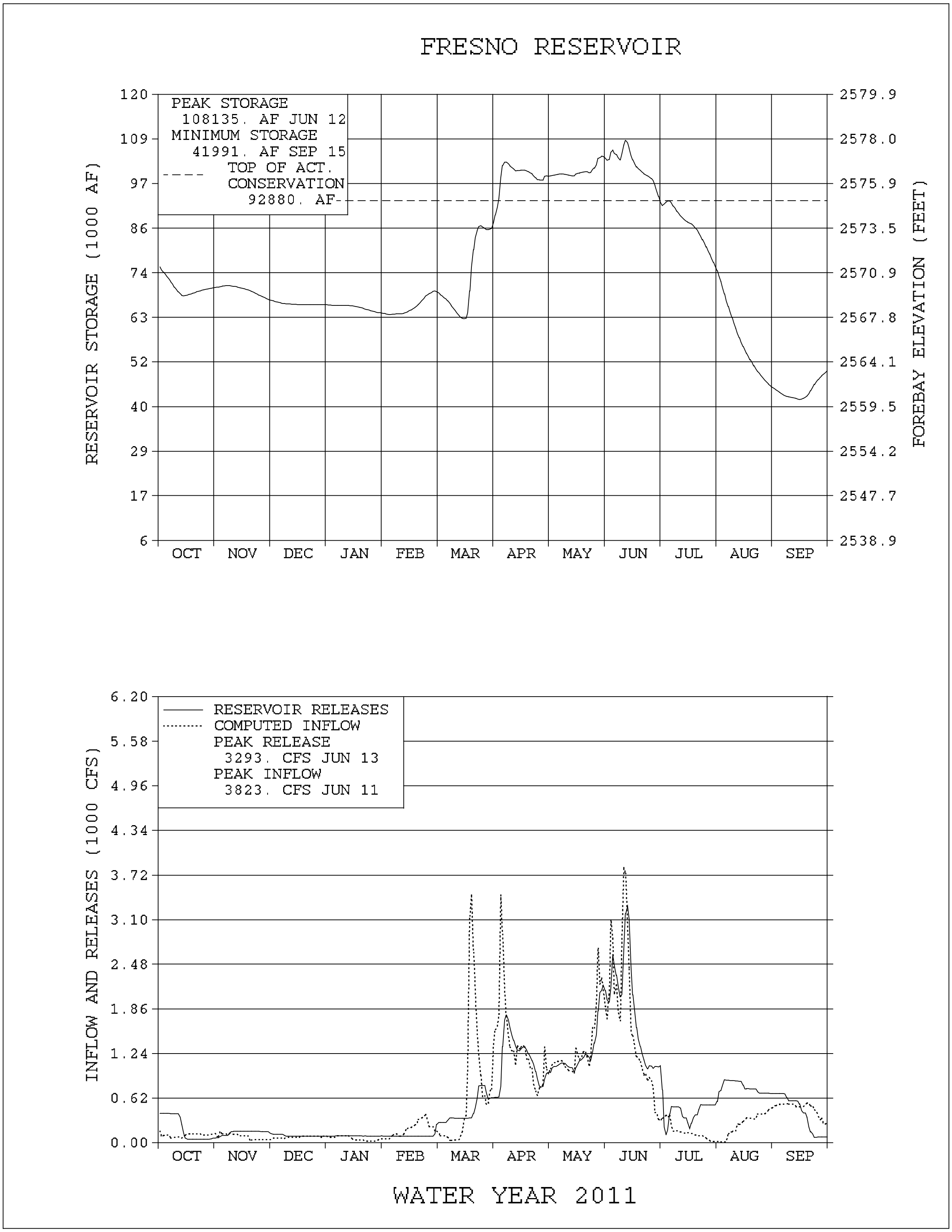


Table MTT10-C:
Hydrologic Data for Water Year 2011
Nelson Reservoir (Milk River Project)
NEW SEDIMENT SURVEY DATA EFFECTIVE 10/1/2001

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	2221.26	77,488	OCT 01, 2010
END OF YEAR	2220.69	75,077	SEP 30, 2011
ANNUAL LOW	2218.39	65,802	MAR 21, 2011
ANNUAL HIGH	2221.43	78,216	MAY 26, 2011
HISTORIC HIGH	2221.68	79,297	JUN 01, 2007

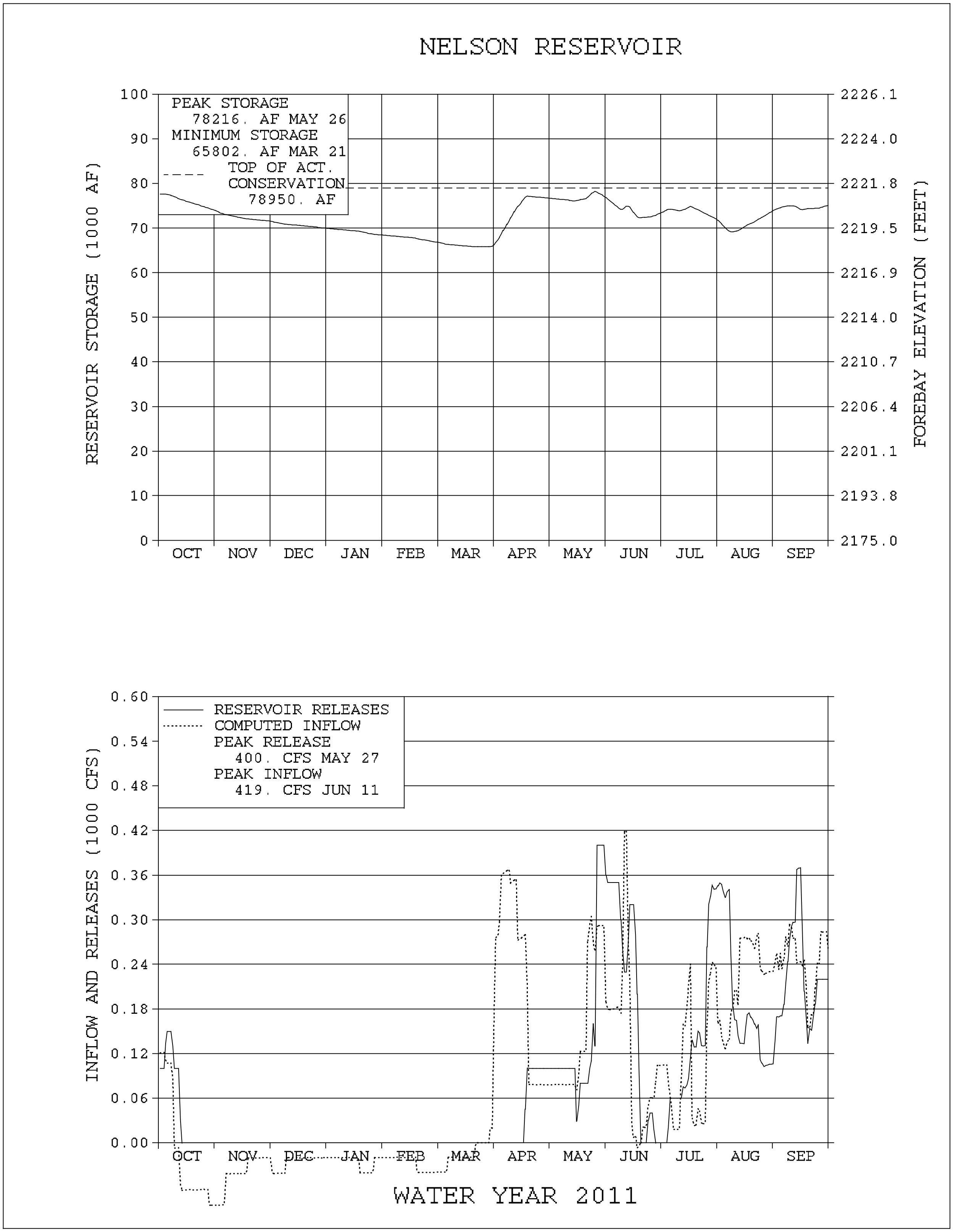
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	55,706	OCT 10-SEP 11	58,116	OCT 10-SEP 11
DAILY PEAK (CFS)	419	JUN 11, 2011	400	MAY 27, 2011
DAILY MINIMUM (CFS)	0	*	0	

* During nonirrigation season

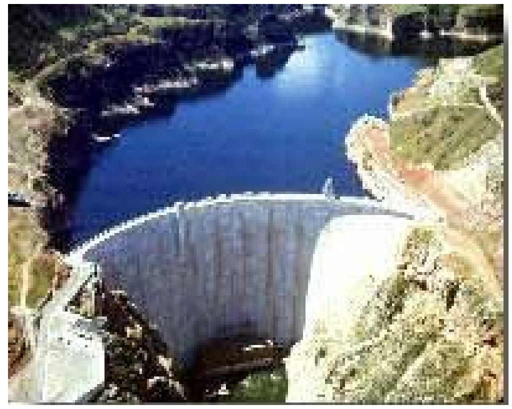
MONTH	INFLOW*		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	-1.0	---	2.7	181	73.9	125
NOVEMBER	-2.3	---	0.0	---	71.5	123
DECEMBER	-1.6	---	0.0	---	70.0	124
JANUARY	-1.6	---	0.0	---	68.4	124
FEBRUARY	-1.5	---	0.0	---	66.9	124
MARCH	-1.0	---	0.0	---	65.9	121
APRIL	13.3	177	2.5	432	76.7	127
MAY	9.3	137	8.9	117	77.1	127
JUNE	7.5	97	11.4	152	73.2	123
JULY	6.5	129	7.7	75	72.0	131
AUGUST	13.5	185	11.6	144	73.9	136
SEPTEMBER	14.5	229	13.3	350	75.1	132
ANNUAL	55.7	135	58.1	145		
APRIL-JULY	36.7	135				

* Average for the 1947-2011 period.

Figure MTG11:
Nelson Reservoir



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 Pennsylvania Power & Light, MT (PPL-MT), formerly known as Montana Power Company (MPC) 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 WYAO, all reservoir and river operations in the Bighorn River Basin are closely coordinated between the MTAO and WYAO.

In July 2007, a hydrographic and a topographic survey were conducted and a new elevation-area-capacity table and curve was developed. The 2007 survey determined that Bighorn Lake has a storage capacity of 1,278,896 acre-feet and a surface area of 17,279 acres at reservoir elevation 3657.0 (the top of the spillway gates). Since closure of the dam in November 1965, the reservoir has accumulated a sediment volume of 103,415 acre-feet below reservoir elevation 3657. This volume represents a 7.48 percent loss in capacity and an average annual loss of 2,480 acre-feet from November 1965 through July 2007. Sediment was deposited at the annual rate of 0.242 acre-feet per square mile during that period. The revised area-capacity table was put into effect on January 1, 2011, reflecting the new storage levels.

During September 2010, the valley and mountain precipitation in the Bighorn River Basin had dropped to only 17 and 59 percent of average, respectively. Below normal precipitation combined with heavy upstream irrigation demands, caused inflows into Bighorn Lake to drop to only 73 percent of average during August and September, averaging about 2,000 cfs per day. To slow the evacuation rate of storage in Bighorn Lake, the releases to the Bighorn River were gradually reduced to 2,500 cfs on August 12-13 and maintained at this rate through the remainder of water year 2010. Storage in Bighorn Lake continued to slowly decline and ended the water year at 960,869 acre-feet at elevation 3630.14. This was 94 percent of average and 109,160 acre-feet or 9.86 feet below the top of the joint-use pool. This was also 99,926 acre-feet or 9.12 feet lower than the level experienced at the end of water year 2009 and 2.34 feet higher than the average level recorded for this time of year since construction of Bighorn Lake in 1967.

At the end of water year 2010, storages in Boysen and Buffalo Bill Reservoirs located on the Wind and Shoshone Rivers were drafted to 106 and 110 percent of average, respectively, to meet irrigation demands. With the carry-over storages in Boysen and Buffalo Bill Reservoirs above average, the WYAO established the minimum winter releases out of these reservoirs at flow rates of 800 and 350 cfs, respectively. These releases were 88 percent of average and 118 percent of average, respectively.

On October 7, Reclamation hosted a public meeting in Billings, Montana, to discuss the water supply outlook and projected fall and winter operations of the Bighorn River Basin. With no objections to the information that was presented, the fall and winter releases out of Bighorn Lake to the Bighorn River were set at 2,370 cfs. On November 1, total storage in Bighorn Lake was 938,169 acre-feet at elevation 3627.72, about 93 percent of average for this time of year. Based on the November through March inflow projections, it was anticipated that by maintaining a fall and winter release rate of 2,370 cfs, the level of Bighorn Lake would reach elevation 3614.73 with 834,800 acre-feet of storage by the end of March. This release rate was 83 percent of average.

At the beginning of water year 2011 weather conditions improved a bit from that experienced in September. Precipitation during October continued to remain well below normal but had increased to 45 percent of average across the valleys and to 80 percent of average across the mountains. Precipitation in the Bighorn River Basin continued improving during November and December as well. The valley precipitation increased to 133 percent of average while the mountain precipitation had increased to 106 percent of average. In response, the snow water equivalent of the mountain snowpack likewise had increased from about 50 percent of average near the middle of November to about 102 percent of average on January 1.

Snow continued to fall over the mountains at near normal rate through the middle of January. It was then that the snow began falling at above normal rates and by February 1, the NRCS measured the mountain snowpack in the Bighorn River Basin at 119 percent of average. This was quite contrary to the snowpack experienced a year earlier at only 67 percent of average on this same date.

The mountain precipitation in the Bighorn Basin upstream of Bighorn Lake was 110 percent of average during February and March. The mountain snowpack was accumulating at near normal rates and remained above normal during February and March. On April 1, the NRCS measured the snow water content of the mountain snowpack in the Bighorn Basin at about 116 percent of average. The Wind and Shoshone River Basins, major tributaries of the Bighorn River, were both measured at 103 and 105 percent of average, respectively. On April 1, the storage content in Bighorn Lake was 836,009 acre-feet at elevation 3620.91, about 101 percent of average. Under these conditions, no significant major changes in reservoir operations were anticipated at this time.

By the second week of April, weather conditions began changing significantly. Numerous spring storms frequented the Bighorn Basin, bringing cooler temperatures and above normal precipitation to the basin. The valley precipitation had increased from 60 percent of average in March to 113 percent of average during April.

Likewise, the mountain precipitation had increased from 116 percent of average in March to 153 percent of average during April. However, the above average precipitation did not stop in April, but continued through May and into early June.

The large snowstorms in April and May continued to increase the snow water equivalent to record high levels. Normally the high elevation snowpack begins to melt out about the middle of April. However in 2011, the temperatures remained much cooler than normal through much of June, thereby delaying the mountain snowmelt runoff by several weeks. By May 1, the NRCS measured snowpack conditions at 155 percent of average. The snow began to melt about the middle of May, but as the low elevation snow melted, new snow continued to fall. On May 22, the snow water content in the mountain snowpack had climbed to a record high of 20.62 inches, well above the average peak of 14.75 inches normally experienced around the middle of April. This was 0.38 greater than the previous record amount experienced on April 16 of the record water year of 1997. Snowpack conditions in the Wind and Shoshone River Basins on May 1 were respectively, 132 and 130 percent of average.

In early May, storage levels in Boysen, Buffalo Bill, and Yellowtail Reservoirs were positioned to store the high mountain snowmelt runoff without using large portions of the joint-use and flood control storage spaces normally reserved to store the snowmelt runoff. But then several large spring storm systems moved into eastern Montana, northeastern Wyoming and much of western North Dakota, dumping record amounts of precipitation during May. The first storm system moved into the area on May 8-10, dumping as much as 5.00 inches of precipitation in and around the Miles City area of Montana. Several other weather stations reported receiving precipitation amounts varying from 1.50-3.00 inches.

However, this was only the beginning of the record amounts of precipitation received during May. A second large major storm system once again moved into the Bighorn and lower Yellowstone River Basins again dumping record amounts of precipitation during May 18-26. According to the National Weather Service many areas in southeastern Montana and northeastern Wyoming reported receiving from 2.50 inches of rain up to 7.75 inches. At one location in the Wolf Mountains near Lodge Grass, Montana, amounts of nearly 11 inches was reported. The record precipitation created ravaging floods along the Bighorn and Yellowstone River Basins downstream of Yellowtail Dam. The storms also produced significant amounts of rain and snow in many streams upstream of Yellowtail Dam and Bighorn Lake.

The rains continued during late May and into early June. Significant amounts of precipitation was still being reported but of much lesser amounts. During May 29-31, amounts reported generally varied from about 0.75-3.00 inches. Flows in many streams in southeastern Montana were well above safe channel capacity, causing extensive flood damage along these streams. By May 22, flows in the Bighorn River and lower Yellowstone Rivers had swallowed up many towns and caused extensive property damage along the rivers downstream of Yellowtail Dam. The high flows also threatened the Highway 384 Bridge near Hardin, Montana. This bridge, located about 100 feet upstream of the Interstate 90 highway bridges, was not designed for the type of high flows being experienced in late May. If this bridge failed, it could create a cascading effect and may cause the Interstate 90 highway bridges to fail.

In response, the Montana Department of Transportation requested Reclamation to reduce flows to the Bighorn River to minimize stress or prevent failure of the bridge. To help reduce the large inflows into Lake Sakakawea (Garrison Reservoir), the Missouri River Basin, Water Management staff of the Corp of Engineers also requested that releases out of Yellowtail Dam be reduced. In response, Reclamation gradually reduced releases from 8,000 cfs to 3,500 cfs during May 21-25. These reductions in releases along with the high inflows into Bighorn Lake, caused storage in Bighorn Lake to increase from the low for the year of 744,580 acre-feet at elevation 3606.55 on May 19, to 923,610 acre-feet at elevation 3631.31 by May 31.

After the record storm event in late May, it was apparent that much of the exclusive flood control spaces would be utilized in Boysen and Yellowtail Reservoirs. The storm event forced Reclamation to utilize 183,000 acre-feet of storage space that had been evacuated in anticipation of the spring snowmelt runoff. This would leave less storage space available to manage a much larger snowpack introduced by the spring storms. In response to the historic record high rainfall in late May, the Missouri River Basin Water Management staff of the Corp of Engineers requested the immediate utilization of all available storage at Section 7 Projects.

During early discussions, Reclamation and the Corps determined it was not practical to immediately begin utilizing the exclusive flood control space since it would later be needed to mitigate flood control operations during the peak of the spring snowmelt runoff which had not even begun to take place. At this time, Reclamation and the Corps agreed that the operations of Yellowtail Dam and Bighorn Lake would most effectively benefit the Missouri River Basin flood control system by storing water during the peak snowmelt runoff.

Soon after the late May rains, streamflows downstream of Yellowtail Dam began to slowly recede. However, on June 1, the water content of the snowpack above Bighorn Lake was recorded at 20.22 inches, nearly 300 percent of average and a record high for this time of year. Water supply forecasts prepared in early June, indicated storage in Bighorn Lake may reach a record high level into the surcharge storage space. Daily inflows into Bighorn Lake were anticipated to reach as high as 25,000-27,000 cfs by late June. On May 31, inflows into Bighorn Lake had risen to as high as 16,377 cfs. To prevent the storage in Bighorn Lake from exceeding the top of the exclusive flood control zone, releases out of Yellowtail Dam to the Bighorn River were gradually increased from 3,500 cfs late on May 25 to 11,000 cfs by May 31. With little relief from the high inflows being experienced, releases out of Yellowtail Dam to the Bighorn River were gradually increased to 15,000 cfs by June 4.

During June 6-7, another strong spring storm system moved into Montana producing rainfall amounts ranging from about 0.20 inches to as much as 5.00 inches along the Musselshell River. This rain coupled with the already swollen streams, was steadily increasing the flood damages that was already occurring along these rivers and streams of Montana. Inflows into Bighorn Lake once again increased to 20,200 cfs by June 11. Daily streamflow forecasts, indicated inflows into Bighorn Lake could reach as high as 28,000 cfs and storage would be expected to exceed the top of the exclusive flood pool at elevation 3657. This would be a new record high elevation ever recorded at Bighorn Lake.

This was undesirable for Reclamation, as plans were being considered to reserve the last couple of feet or 34,000 acre-feet of the exclusive flood control space for any unexpected late spring storm events. In response, releases out of Yellowtail Dam to the Bighorn River were increased to 15,500 cfs on June 10. This was the second highest peak release of record to the Bighorn River since the construction of Yellowtail Dam in 1967. The previous peak discharge of record to the Bighorn River occurred on July 8, 1967, at 24,090 cfs. Until repairs and maintenance could be completed on the Bighorn Canal due to the extensive damage caused by the May rains, irrigation deliveries to the Bighorn Canal had to be delayed until June 29.

With the high elevation snowmelt well underway, this, combined with the unusually high releases out of Boysen and Buffalo Bill Reservoirs, caused inflows into Bighorn Lake to increase to the peak for the year at 20,353 cfs on June 27. As a result, the June inflow into Bighorn Lake was 235 percent of average, totaling 1,004,222 acre-feet. This was 74,019 acre-feet greater than the previous record inflow that occurred during June of 1967.

In late June, the June-July water supply outlook for the Bighorn River Basin was closely re-evaluated. The forecasted inflows into Boysen Reservoir were reduced considerably, providing an opportunity to begin gradually reducing releases out of Boysen Reservoir in late June. In response, the releases out of Yellowtail Dam to the Bighorn River were likewise gradually reduced from 15,500 cfs to 14,000 cfs on June 23. With repairs to the Bighorn Canal completed, irrigation deliveries to the Indian Irrigation Project was initiated and gradually increased to 150 cfs on June 29.

Record flooding along the mainstem of the Missouri River in Montana, and North and South Dakota was pushing Forth Peck, Garrison, and Oahe Reservoirs into their surcharge storage zones. The Corps reported that releases out of all their projects on the Missouri River mainstem system were double the amount of the previous record amounts ever released. Flooding along the Missouri River had shut down Interstate Highways in several states, threatened major metropolitan areas, and caused other considerable flood damages. Numerous daily phone calls were being made between Reclamation and the Corps to discuss the critical nature of the situation. The Corps made a special request to Reclamation to store a significant amount of floodwaters in Bighorn Lake to help alleviate the severe flooding that was already along the Missouri River in the Dakotas. Reclamation and the Corps coordinated a release plan necessary to balance the local flood risk and benefits to the downstream flooding. The most immediate need was to decrease flows in the Missouri River near Williston, North Dakota, to reduce pressures and large seepage that was occurring on levies in the Williston area. While reductions in releases out of Yellowtail would not decrease river stages in the Missouri River dramatically, it was determined that even the slightest decreases in stages would have profound benefits on the levee seepage that was occurring. Reclamation was concerned about reducing releases before the snowmelt runoff started to recede. It was agreed to gradually reduce releases to the Bighorn River to 8,500 cfs for a short period of time to improve the situation near Williston and Garrison and allow storage in Bighorn Lake to reach elevation 3655, about 2 feet below the top of the exclusive flood control storage zone.

Beginning June 30, releases to the Bighorn River were gradually reduced from 14,000 cfs to 8,500 cfs by July 2 and maintained at this rate through July 11. On July 1, storage in Bighorn Lake was at elevation 3643.48 and storage content of 1,066,584 acre-feet. This was 109 percent of average and 3.34 feet above the top of the joint-use pool. With inflows into Bighorn Lake still averaging over 14,000 cfs, storage in Bighorn Lake was slowly and steadily increasing into the exclusive flood pool. By July 24, storage in Bighorn Lake had reached a peak level for the year at elevation 3655.03 and storage content of 1,245,283 acre-feet. To control the rate of fill of storage in Bighorn Lake, releases out of Bighorn Lake to the Bighorn River, were once again gradually increased and maintained at 12,000 cfs during July 20-28.

With the high elevation snowmelt essentially over and releases out of Boysen and Buffalo Bill Reservoirs being gradually reduced, inflows into Bighorn Lake finally began to slowly recede about the middle of July. Inflows into Bighorn Lake dropped from 18,834 cfs on July 1 to about 7,352 cfs on July 31. Evacuation release rates were set to minimize river bank sloughing while continuing to evacuate all flood storage out of the exclusive flood control pool by the middle of October. On July 28, releases to the Bighorn River were reduced from 12,000 cfs to 10,000 cfs and maintained at this rate into early August.

Boysen and Buffalo Bill Reservoirs and Bighorn Lake played a major role in providing flood control along the Bighorn, Yellowstone, and Missouri Rivers during the 2011 runoff. During the peak of the runoff period, these reservoirs stored about 70 percent of the total flow in the Bighorn River. With this control, the flow of the Yellowstone River at Forsyth and Miles City would have peaked at 101,384cfs and 105,839 cfs as compared to the actual peaks of 78,206 cfs and 84,135 cfs, respectively. Refer to Exhibits 2A, 2B, 3A, and 3B to see how the flows in the Yellowstone River were affected by the regulation of these reservoirs during the record high runoff period.

Inflows into Bighorn Lake during July were 275 percent of average, totaling 792,902 acre-feet. This was the second highest July inflow of record since the construction of Yellowtail Dam and 193,485 acre-feet lower than the previous record high July inflow which occurred in 1967. The April-July inflows were 226 percent of average, totaling 2,572,305 acre-feet. This was about 1,067,580 acre-feet more than experienced in water year 2010 and was recorded as the highest April-July inflow of record since construction of Yellowtail Dam, surpassing the previous record high April-July inflow of 1967 by 301,187 acre-feet.

As the inflows into Bighorn Lake continued to recede, releases out of Yellowtail Dam to the Bighorn River were gradually reduced from 10,000 cfs to about 4,000 cfs during August 8-29. On September 15, the releases to the Bighorn River were further reduced to 3,500 cfs and maintained at this rate through the remainder of the year. On September 30, storage was drafted to elevation 3640.35 having a storage content of 1,025,004 acre-feet. This was 106 percent of average and 4,431 acre-feet or 0.35 feet above the top of the joint-use pool and 10.21 feet higher than the level experienced at the end of water year 2010.

The annual runoff into Bighorn Lake during water year 2011 totaled 3,817,006 acre-feet. This was 163 percent of average and 53 percent or 1,243,498 acre-feet greater than the total runoff experienced during water year 2010. The total amount of water released to the Bighorn River during 2011 was 3,693,250 acre-feet or 159 percent of average. This was about 46 percent or 1,058,055 acre-feet greater than what was released to the Bighorn River in 2010.

EXHIBIT 2A

EFFECTS OF BIGHORN BASIN OPERATIONS

Water Year 2011

Date	Bighorn Lake Operations			Boysen Operations			Buffalo Bill Operations			Forsyth Gage	
	Inflow	Release	Effects	Inflow	Release	Effects	Inflow	Release	Effects	Regulated by Dams	Unregulated by Dams
1-May	3214	6507	-3293	629	2221	-1592	419	1299	-879	11639	
2-May	3486	6505	-3019	766	2428	-1662	395	1269	-874	11654	
3-May	3605	6503	-2898	316	2417	-2101	324	1220	-896	11561	6071
4-May	3592	6332	-2740	926	2421	-1496	506	1250	-745	11307	5873
5-May	3319	5995	-2676	403	2410	-2008	980	1334	-354	11139	5402
6-May	3338	5995	-2657	558	2406	-1848	970	1408	-438	10942	6026
7-May	3362	5995	-2633	267	2399	-2132	1251	1449	-198	11078	6060
8-May	3323	5997	-2674	431	2403	-1973	2147	1451	696	11318	6399
9-May	3747	5997	-2250	519	2406	-1888	2318	1556	762	12114	7109
10-May	5097	5996	-900	1469	2409	-940	2406	2056	349	16490	12963
11-May	7643	6150	1493	606	2408	-1801	1826	2568	-742	25131	23105
12-May	7938	6504	1433	830	2409	-1579	1938	3037	-1099	31527	32429
13-May	6614	6708	-95	840	2408	-1567	2889	3423	-534	26918	25808
14-May	6659	6988	-329	773	2405	-1632	3834	3485	349	21764	18992
15-May	6610	6989	-379	715	2412	-1697	2780	3495	-714	21770	19339
16-May	6393	7227	-834	652	2408	-1756	3679	3506	173	24392	22730
17-May	6717	7476	-759	739	2414	-1674	3232	3502	-271	24608	21364
18-May	6659	7645	-986	679	2416	-1737	2876	3499	-623	26743	24400
19-May	7096	7993	-897	2207	2417	-210	2778	3512	-734	25873	22941
20-May	8197	7993	204	3542	2641	900	2667	3491	-823	27733	24475
21-May	14004	6952	7052	2519	3004	-485	2247	3428	-1181	36109	35370
22-May	15871	3496	12375	2252	3013	-761	2548	3390	-841	62422	69552
23-May	13541	3676	9865	2113	3356	-1244	3877	3639	238	78206	88916
24-May	14648	4524	10124	1787	3846	-2060	6004	4214	1790	78162	86425
25-May	17626	4265	13362	2363	4207	-1843	5275	4331	944	62207	71326
26-May	15473	5596	9877	1942	4250	-2308	5215	4356	860	63962	77055
27-May	13745	7933	5812	1859	4280	-2422	4205	4343	-138	74357	83335
28-May	12774	9742	3032	1946	4215	-2269	3439	4340	-900	74960	79324
29-May	12858	8013	4845	3128	3595	-467	3368	4363	-995	54586	55058
30-May	13355	8015	5340	4052	3919	133	2894	4240	-1346	46394	48070
31-May	16377	8880	7498	3607	3607	0	2561	4016	-1455	51865	55743

Date	Bighorn Lake Operations			Boysen Operations			Buffalo Bill Operations			Forsyth Gage	
	Inflow	Release	Effects	Inflow	Release	Effects	Inflow	Release	Effects	Regulated by Dams	Unregulated by Dams
1-Jun	16312	11333	4979	2720	3979	-1259	3197	4155	-958	50778	57063
2-Jun	12410	12758	-348	2143	4515	-2372	5129	4762	367	46474	49998
3-Jun	12564	14106	-1542	2172	4785	-2613	4176	5014	-838	43963	41398
4-Jun	13593	14705	-1112	2478	5326	-2848	4117	4951	-833	45790	42243
5-Jun	13742	14953	-1211	2209	5283	-3074	5692	5205	487	45452	40889
6-Jun	14410	14958	-548	2452	5178	-2726	8512	5397	3115	43312	38421
7-Jun	14789	14957	-168	3652	5098	-1446	9363	5471	3892	45479	42344
8-Jun	15967	14958	1008	6282	5088	1194	7543	5526	2018	52659	52879
9-Jun	16569	14989	1581	5118	5118	0	7845	5571	2274	59174	62628
10-Jun	18957	15026	3931	5384	5131	253	6116	5571	545	63158	67951
11-Jun	20200	15448	4752	4750	5129	-379	6446	5540	906	64706	70911
12-Jun	17849	15456	2393	5111	5111	0	6839	5594	1245	62460	68010
13-Jun	16462	15455	1007	5182	5117	65	6883	5606	1277	57556	60477
14-Jun	16742	15447	1295	5830	5137	693	8453	5606	2847	56809	59060
15-Jun	17537	15461	2076	6252	5177	1075	8676	5615	3061	56746	59382
16-Jun	18128	15455	2673	6829	5429	1400	8784	5661	3123	59238	64854
17-Jun	18168	15455	2713	7857	5749	2108	6538	5690	848	62398	69208
18-Jun	18133	15454	2679	6792	5825	968	5314	5687	-373	63576	70812
19-Jun	17124	15457	1667	5815	5815	0	5633	5689	-56	59631	65265
20-Jun	17377	15457	1919	5609	5804	-195	5782	5660	123	52268	54530
21-Jun	16985	15460	1526	5835	5706	129	6183	5753	431	51032	52895
22-Jun	17050	15458	1592	5498	5303	195	9141	5805	3335	51361	52814
23-Jun	17306	14791	2515	6889	4560	2329	11349	5800	5549	52151	54302
24-Jun	18096	13956	4140	8481	4094	4387	13574	5816	7759	56350	62395
25-Jun	18803	13956	4847	10693	4021	6672	13028	5818	7210	61184	73202
26-Jun	19864	13957	5906	12157	4025	8132	11474	5829	5644	65919	82912
27-Jun	20353	13958	6395	12804	3747	9057	9546	5826	3719	71138	90926
28-Jun	18450	13503	4946	11220	2999	8221	10563	5839	4724	72719	92890
29-Jun	16752	12605	4146	10667	2691	7976	13829	5871	7958	66123	83845
30-Jun	15603	11214	4389	10935	2014	8921	16237	5875	10363	60471	77562

EXHIBIT 2B

EFFECTS OF BIGHORN BASIN OPERATIONS
2011

Date	Bighorn Lake Operations Inflow	Bighorn Lake Operations Release	Bighorn Lake Operations Effects	Boysen Operations Inflow	Boysen Operations Release	Boysen Operations Effects	Buffalo Bill Operations Inflow	Buffalo Bill Operations Release	Buffalo Bill Operations Effects	Forsyth Gage Regulated by Dams	Forsyth Gage Unregulated by Dams
1-Jul	18834	10052	8782	12974	2000	10974	14921	5878	9043	62902	83226
2-Jul	17229	9082	8148	16501	2006	14495	12751	5876	6875	67126	95192
3-Jul	13810	8351	5459	16485	2037	14448	12846	5863	6984	72611	100776
4-Jul	14858	8350	6508	13989	2155	11834	14873	5856	9017	74554	101384
5-Jul	12375	8400	3975	13184	3219	9964	14067	5864	8203	67576	95516
6-Jul	11810	8441	3369	13125	3785	9340	14435	5886	8549	63832	88658
7-Jul	13534	8441	5093	12182	3035	9147	14053	5883	8171	65604	87141
8-Jul	12749	8442	4307	12091	3063	9028	13102	6137	6965	66734	89717
9-Jul	11835	8442	3393	12165	3365	8799	12409	7274	5135	67279	88904
10-Jul	12328	8440	3888	11180	3854	7327	10852	7909	2943	64023	83408
11-Jul	13167	9327	3840	10286	4939	5348	10347	8032	2315	60262	78085
12-Jul	13185	9966	3218	8949	5264	3685	10950	8229	2720	54613	68722
13-Jul	13550	10425	3125	9268	5660	3608	10264	8816	1448	51288	62170
14-Jul	14716	10970	3746	8461	6078	2383	9981	9094	888	52327	61858
15-Jul	14926	10909	4017	7710	6467	1243	9428	9191	237	53819	62621
16-Jul	15361	10908	4453	6952	6637	315	8608	9183	-575	51844	59132
17-Jul	15387	10907	4480	6627	6627	0	8323	9181	-858	48285	54218
18-Jul	15089	10909	4181	5707	6540	-833	8871	9119	-249	45403	49623
19-Jul	15171	11059	4112	5437	6371	-933	9224	8991	232	43251	46574
20-Jul	14421	11552	2870	6221	6428	-208	8675	9043	-368	42262	45293
21-Jul	14644	11923	2721	6612	6511	101	7296	8785	-1488	42383	44552
22-Jul	14370	11984	2386	5474	6512	-1038	6386	7546	-1160	41337	43483
23-Jul	13095	11982	1113	4022	6499	-2477	6276	7035	-759	38294	39293
24-Jul	12500	11986	515	3792	6159	-2367	5258	5820	-562	36416	35331
25-Jul	11505	11986	-481	3342	5394	-2052	5073	5152	-79	35254	32532
26-Jul	9683	11954	-2271	3118	4854	-1736	4725	4887	-161	33423	30013
27-Jul	8595	11955	-3360	2659	4494	-1835	4545	4225	321	32050	27647
28-Jul	8303	10666	-2363	2952	4370	-1418	3931	3730	200	31559	26302
29-Jul	7867	9982	-2115	2641	4362	-1721	3448	2888	561	30229	26352
30-Jul	7504	9977	-2473	2534	4353	-1819	3351	3191	159	27752	24418
31-Jul	7352	9977	-2625	2030	4343	-2312	3031	3071	-39	26558	22925

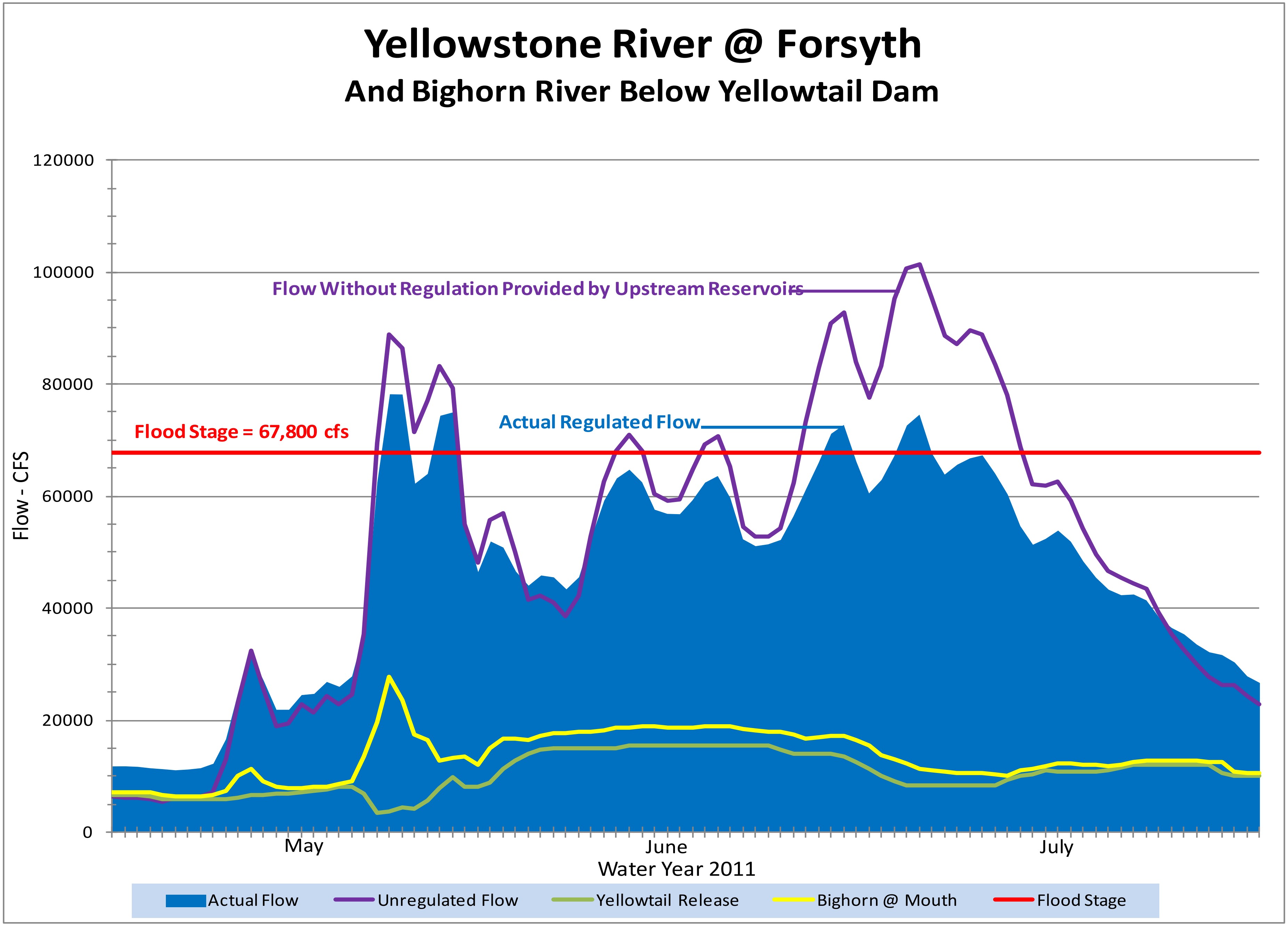

Yellowstone River @ Forsyth
And Bighorn River Below Yellowtail Dam
Flow Without Regulation Provided by Upstream Reservoirs
Actual Regulated Flow
Flood Stage = 67,800 cfs
Flow - CFS
120000
100000
80000
60000
40000
20000
0
May
June
July
Water Year 2011
Actual Flow
Unregulated Flow
Yellowtail Release
Bighorn @ Mouth
Flood Stage

EXHIBIT 3A

EFFECTS OF BIGHORN BASIN OPERATIONS

Water Year 2011

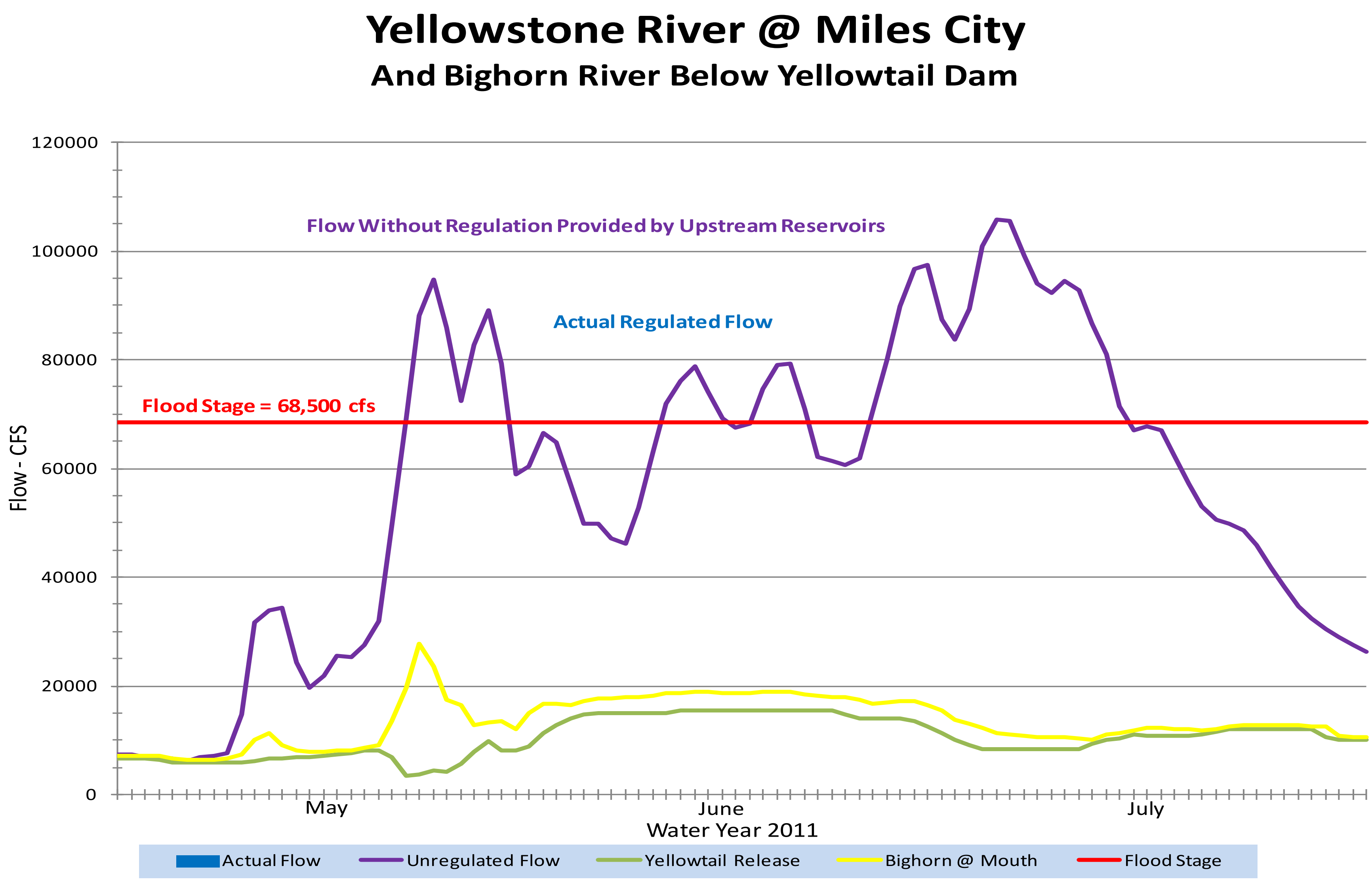
Date	Bighorn Lake Operations			Boysen Operations			Buffalo Bill Operations			Miles City Gage	
	Inflow	Release	Effects	Inflow	Release	Effects	Inflow	Release	Effects	Regulated by Dams	Unregulated by Dams
1-May	3214	6507	-3293	629	2221	-1592	419	1299	-879	12698	
2-May	3486	6505	-3019	766	2428	-1662	395	1269	-874	12514	
3-May	3605	6503	-2898	316	2417	-2101	324	1220	-896	12469	
4-May	3592	6332	-2740	926	2421	-1496	506	1250	-745	12282	6792
5-May	3319	5995	-2676	403	2410	-2008	980	1334	-354	12075	6641
6-May	3338	5995	-2657	558	2406	-1848	970	1408	-438	11910	6173
7-May	3362	5995	-2633	267	2399	-2132	1251	1449	-198	11853	6937
8-May	3323	5997	-2674	431	2403	-1973	2147	1451	696	12035	7016
9-May	3747	5997	-2250	519	2406	-1888	2318	1556	762	12547	7628
10-May	5097	5996	-900	1469	2409	-940	2406	2056	349	19701	14697
11-May	7643	6150	1493	606	2408	-1801	1826	2568	-742	35299	31772
12-May	7938	6504	1433	830	2409	-1579	1938	3037	-1099	35841	33815
13-May	6614	6708	-95	840	2408	-1567	2889	3423	-534	33439	34341
14-May	6659	6988	-329	773	2405	-1632	3834	3485	349	25341	24231
15-May	6610	6989	-379	715	2412	-1697	2780	3495	-714	22370	19598
16-May	6393	7227	-834	652	2408	-1756	3679	3506	173	24187	21756
17-May	6717	7476	-759	739	2414	-1674	3232	3502	-271	27192	25530
18-May	6659	7645	-986	679	2416	-1737	2876	3499	-623	28483	25238
19-May	7096	7993	-897	2207	2417	-210	2778	3512	-734	29831	27489
20-May	8197	7993	204	3542	2641	900	2667	3491	-823	34945	32014
21-May	14004	6952	7052	2519	3004	-485	2247	3428	-1181	52592	49335
22-May	15871	3496	12375	2252	3013	-761	2548	3390	-841	70032	69293
23-May	13541	3676	9865	2113	3356	-1244	3877	3639	238	81007	88136
24-May	14648	4524	10124	1787	3846	-2060	6004	4214	1790	84135	94845
25-May	17626	4265	13362	2363	4207	-1843	5275	4331	944	77774	86037
26-May	15473	5596	9877	1942	4250	-2308	5215	4356	860	63268	72387
27-May	13745	7933	5812	1859	4280	-2422	4205	4343	-138	69741	82833
28-May	12774	9742	3032	1946	4215	-2269	3439	4340	-900	80116	89094
29-May	12858	8013	4845	3128	3595	-467	3368	4363	-995	74848	79211
30-May	13355	8015	5340	4052	3919	133	2894	4240	-1346	58509	58981
31-May	16377	8880	7498	3607	3607	0	2561	4016	-1455	58618	60294

Date	Bighorn Lake Operations			Boysen Operations			Buffalo Bill Operations			Miles City Gage	
	Inflow	Release	Effects	Inflow	Release	Effects	Inflow	Release	Effects	Regulated by Dams	Unregulated by Dams
1-Jun	16312	11333	4979	2720	3979	-1259	3197	4155	-958	62764	66642
2-Jun	12410	12758	-348	2143	4515	-2372	5129	4762	367	58432	64716
3-Jun	12564	14106	-1542	2172	4785	-2613	4176	5014	-838	53533	57057
4-Jun	13593	14705	-1112	2478	5326	-2848	4117	4951	-833	52423	49857
5-Jun	13742	14953	-1211	2209	5283	-3074	5692	5205	487	53479	49933
6-Jun	14410	14958	-548	2452	5178	-2726	8512	5397	3115	51683	47120
7-Jun	14789	14957	-168	3652	5098	-1446	9363	5471	3892	51093	46202
8-Jun	15967	14958	1008	6282	5088	1194	7543	5526	2018	55813	52678
9-Jun	16569	14989	1581	5118	5118	0	7845	5571	2274	62962	63183
10-Jun	18957	15026	3931	5384	5131	253	6116	5571	545	68443	71897
11-Jun	20200	15448	4752	4750	5129	-379	6446	5540	906	71343	76136
12-Jun	17849	15456	2393	5111	5111	0	6839	5594	1245	72611	78816
13-Jun	16462	15455	1007	5182	5117	65	6883	5606	1277	68651	74201
14-Jun	16742	15447	1295	5830	5137	693	8453	5606	2847	66277	69198
15-Jun	17537	15461	2076	6252	5177	1075	8676	5615	3061	65306	67558
16-Jun	18128	15455	2673	6829	5429	1400	8784	5661	3123	65655	68292
17-Jun	18168	15455	2713	7857	5749	2108	6538	5690	848	69030	74645
18-Jun	18133	15454	2679	6792	5825	968	5314	5687	-373	72208	79017
19-Jun	17124	15457	1667	5815	5815	0	5633	5689	-56	71952	79188
20-Jun	17377	15457	1919	5609	5804	-195	5782	5660	123	65394	71028
21-Jun	16985	15460	1526	5835	5706	129	6183	5753	431	59893	62155
22-Jun	17050	15458	1592	5498	5303	195	9141	5805	3335	59485	61349
23-Jun	17306	14791	2515	6889	4560	2329	11349	5800	5549	59306	60759
24-Jun	18096	13956	4140	8481	4094	4387	13574	5816	7759	59783	61935
25-Jun	18803	13956	4847	10693	4021	6672	13028	5818	7210	64444	70489
26-Jun	19864	13957	5906	12157	4025	8132	11474	5829	5644	67953	79971
27-Jun	20353	13958	6395	12804	3747	9057	9546	5826	3719	72847	89840
28-Jun	18450	13503	4946	11220	2999	8221	10563	5839	4724	76949	96737
29-Jun	16752	12605	4146	10667	2691	7976	13829	5871	7958	77349	97519
30-Jun	15603	11214	4389	10935	2014	8921	16237	5875	10363	69774	87496

EXHIBIT 3B

EFFECTS OF BIGHORN BASIN OPERATIONS
2011

	Bighorn Lake Operations			Boysen Operations			Buffalo Bill Operations			Miles City Gage	
Date	Inflow	Release	Effects	Inflow	Release	Effects	Inflow	Release	Effects	Regulated by Dams	Unregulated by Dams
1-Jul	18834	10052	8782	12974	2000	10974	14921	5878	9043	66713	83804
2-Jul	17229	9082	8148	16501	2006	14495	12751	5876	6875	69101	89424
3-Jul	13810	8351	5459	16485	2037	14448	12846	5863	6984	72937	101003
4-Jul	14858	8350	6508	13989	2155	11834	14873	5856	9017	77674	105839
5-Jul	12375	8400	3975	13184	3219	9964	14067	5864	8203	78619	105449
6-Jul	11810	8441	3369	13125	3785	9340	14435	5886	8549	71254	99194
7-Jul	13534	8441	5093	12182	3035	9147	14053	5883	8171	69185	94011
8-Jul	12749	8442	4307	12091	3063	9028	13102	6137	6965	70767	92304
9-Jul	11835	8442	3393	12165	3365	8799	12409	7274	5135	71435	94417
10-Jul	12328	8440	3888	11180	3854	7327	10852	7909	2943	71066	92691
11-Jul	13167	9327	3840	10286	4939	5348	10347	8032	2315	67243	86628
12-Jul	13185	9966	3218	8949	5264	3685	10950	8229	2720	63248	81071
13-Jul	13550	10425	3125	9268	5660	3608	10264	8816	1448	57317	71426
14-Jul	14716	10970	3746	8461	6078	2383	9981	9094	888	56149	67030
15-Jul	14926	10909	4017	7710	6467	1243	9428	9191	237	58321	67853
16-Jul	15361	10908	4453	6952	6637	315	8608	9183	-575	58263	67066
17-Jul	15387	10907	4480	6627	6627	0	8323	9181	-858	55095	62382
18-Jul	15089	10909	4181	5707	6540	-833	8871	9119	-249	51380	57313
19-Jul	15171	11059	4112	5437	6371	-933	9224	8991	232	48837	53057
20-Jul	14421	11552	2870	6221	6428	-208	8675	9043	-368	47132	50455
21-Jul	14644	11923	2721	6612	6511	101	7296	8785	-1488	46883	49914
22-Jul	14370	11984	2386	5474	6512	-1038	6386	7546	-1160	46445	48614
23-Jul	13095	11982	1113	4022	6499	-2477	6276	7035	-759	43800	45946
24-Jul	12500	11986	515	3792	6159	-2367	5258	5820	-562	40849	41848
25-Jul	11505	11986	-481	3342	5394	-2052	5073	5152	-79	39424	38340
26-Jul	9683	11954	-2271	3118	4854	-1736	4725	4887	-161	37434	34712
27-Jul	8595	11955	-3360	2659	4494	-1835	4545	4225	321	35809	32399
28-Jul	8303	10666	-2363	2952	4370	-1418	3931	3730	200	34839	30437
29-Jul	7867	9982	-2115	2641	4362	-1721	3448	2888	561	34156	28898
30-Jul	7504	9977	-2473	2534	4353	-1819	3351	3191	159	31273	27395
31-Jul	7352	9977	-2625	2030	4343	-2312	3031	3071	-39	29576	26242



Yellowstone River @ Miles City
And Bighorn River Below Yellowtail Dam
Flow Without Regulation Provided by Upstream Reservoirs
Actual Regulated Flow
Flood Stage = 68,500 cfs
Flow - CFS
120000
100000
80000
60000
40000
20000
0
May
June
July
Water Year 2011
Actual Flow
Unregulated Flow
Yellowtail Release
Bighorn @ Mouth
Flood Stage

The good water levels of Bighorn Lake during 2011 allowed for full service recreation at all marinas around Bighorn Lake during the recreation season from Memorial Day Weekend through Labor Day Weekend. During the high runoff season, some of the recreation areas were impacted by the unusually high water levels, requested by the U.S. Army Corps of Engineers.

Total generation produced at Yellowtail Powerplant during 2011 was 1,045,486,000 kilowatt-hours, 121 percent of the long term average since construction of the powerplant in 1967. This was 731,759 kilowatt-hours more than generated during the record low year of 2003 and 172,886 kilowatt-hours more than generated in 2010. Approximately 78 percent of all the water released from Yellowtail Dam during 2011 was released through the powerplant (2,894,447 acre-feet). The remainder of the water (812,645 acre-feet) was released either through the evacuation outlet gates or the spillway gates during the spring snowmelt runoff season to control the rate of fill of storage in Bighorn Lake.

The Corps estimated that during 2011, Bighorn Lake prevented $2,035,600 of local flood damages and also prevented $12,703,900 in flood damages downstream on the Missouri River below Fort Peck Reservoir for a total of $14,739,500. Since construction of Yellowtail Dam in 1965, Bighorn Lake has reduced flood damages by a total of $154,633,900.

Important Events in Water Year 2011

September 29-30: With the 2010 irrigation season essentially over, the BIA requested all diversions to the Bighorn Canal be gradually discontinued for the year. In response, the total release out of Bighorn Lake was gradually reduced to 2,500 cfs (2,500 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

October 7: Reclamation hosted the annual fall water supply meeting at the MSU-B building in downtown Billings, Montana, to discuss the operations of the Bighorn River Basin. Dan Jewell, Area Manager, and Tim Felchle, Chief of Reservoir and River Operations for MTAO, presented the water supply outlook and the proposed operations of Bighorn Lake and Bighorn River for the fall and winter of the 2010-2011.

October 13-14: The level of the Afterbay Reservoir was maintained between elevations 3173-3175 to allow for a landscape contractor to install a floating water intake structure in the Afterbay.

October 16: Streamflow measurements indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted gradually to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

October 21-25: Power generation indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted gradually to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

October 26-27: Power generation indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted gradually to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

November 1-8: Power generation indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted gradually to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

November 8-11: Power generation indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted gradually to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

November 17-18: Power generation indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted gradually to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

November 24: Power generation indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

November 29-30: Power generation indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted gradually to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

December 8: Power generation indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

December 15: Power generation indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

December 21: Streamflow measurements indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

February 8: Streamflow measurements indicated actual flows in the Bighorn River were higher than anticipated. Turbine releases were adjusted to maintain total release out of Bighorn Lake at 2,370 cfs (2,370 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

March 10: A 1-day outage was placed on the Afterbay sluice gates to allow underwater inspection of the gates.

March 10: Mountain snowpack conditions were above normal in the Bighorn Basin. Based on the March water supply forecast, releases to the Bighorn River were increased to 2,500 cfs.

March 16: Warm temperatures began to melt the low elevation snowpack causing inflows to increase to near 3,800 cfs. To control the rate of fill of storage in Bighorn Lake, releases to the Bighorn River were increased to 2,750 cfs.

March 28: Mountain snowpack conditions remains at 108 percent of average. With inflows near 2,400 cfs, releases to the Bighorn River were increased to 3,000 cfs to control the rate of fill of storage in Bighorn Lake.

April 6-8: Mountain snowpack in the Bighorn Basin has increased to 113 percent of average and inflows into Bighorn Lake are over 3,000 cfs. To control the rate of fill of storage in Bighorn Lake, releases to the Bighorn River were gradually increased to 3,750 cfs.

April 13-14: Mountain snowpack in the Bighorn Basin has continued to increase to 118 percent of average. Inflows into Bighorn Lake have increased to over 4,400 cfs. To control the rate of fill of storage in Bighorn Lake, releases to the Bighorn River were gradually increased to 4,750 cfs.

April 16-18: Mountain snowpack in the Bighorn Basin has continued to increase to 119 percent of average. Based on the April water supply forecast, releases were gradually increased to 6,250 cfs to control the rate of fill of storage in Bighorn Lake.

April 17-19: The minimum level of the Afterbay was maintained no lower than elevation 3185 to allow for maintenance on the sluice gates of the Yellowtail Afterbay Dam.

April 27: Mountain snowpack in the Bighorn River Basin continued to increase to 135 percent of average. Preliminary forecasts indicate the May-July inflow into Bighorn Lake to be about 150 percent of average. To prepare for the spring snowmelt runoff, releases to the Bighorn River were gradually increased to 6,500 cfs.

May 4: Mountain snowpack in the Bighorn River Basin has increased to 142 percent of average but the inflows into Bighorn Lake decreased considerably. To slow the evacuation rate of storage in Bighorn Lake, releases to the Bighorn River were reduced to 6,000 cfs.

May 11: Mountain snowpack in the Bighorn River Basin has increased to 150 percent of average. Inflows into Bighorn Lake have increased to over 5,000 cfs. To prepare for the spring snowmelt runoff, releases to the Bighorn River were again increased to 6,500 cfs.

May 13-18: Mountain snowpack in the Bighorn River Basin remains well above average. A strong spring storm has caused inflows into Bighorn Lake to increase to near 8,000 cfs. To prepare for the spring snowmelt runoff, releases to the Bighorn River were gradually increased to 8,000 cfs.

May 21: Record heavy precipitation during May 19-22 caused extensive flooding along many streams in southeastern Montana, northwestern Wyoming and the western Dakotas. To help reduce and minimize flooding downstream of Yellowtail Dam, releases to the Bighorn River were gradually reduced to 3,500 cfs.

May 23: After the rains subsided and streamflows began to recede, releases to the Bighorn River were gradually increased to 4,500 cfs to control the rate of fill of storage in Bighorn Lake and prepare for the spring snowmelt runoff.

May 25: More heavy precipitation fell across southeastern Montana. To help reduce and alleviate flooding along the Bighorn River, releases to the Bighorn River were reduced to 3,500 cfs at 9:00 am.

May 25-27: The heavy precipitation had diminished along with the flash flooding. Inflows into Bighorn Lake remained near 15,000-16,000 cfs. Storage was quickly filling. To slow the rate of fill of storage in Bighorn Lake, releases to the Bighorn River were gradually increased to 10,000 cfs.

May 25-August 15: As the total release was increased above the capacity or restrictions of the turbine release, spills though the river outlet gates and spillway gates were initiated and adjusted as needed to accommodate special requests of WAPA to comply with transmission restrictions on Yellowtail south transmission system.

May 28: NWS forecasted heavy precipitation across much of Montana and northern Wyoming. To reduce the potential for more serious flooding along the Bighorn River downstream of Yellowtail Dam, releases to the Bighorn River were reduced to 8,000 cfs.

May 31-June 4: Following the recent precipitation, streamflows downstream of Yellowtail Dam are receding. Based on the June 1 water supply forecast, releases to the Bighorn River were gradually increased to 15,000 cfs, to continue preparing for the spring snowmelt runoff.

June 10: Inflows into Bighorn Lake increased to near 18,000 cfs and storage in Bighorn Lake was quickly filling. To slow and control the rate of fill of storage in Bighorn Lake, releases to the Bighorn River were increased to 15,500 cfs.

June 12: High spillway discharges caused extensive erosion to the backfill area adjacent to the spillway stilling basin. Releases out of the powerplant turbines, spillway gates, and river outlet gates were varied to eliminate or minimize the extent of the erosion while repairs could be made. Releases to the Bighorn River continued to be maintained at 15,500 cfs during this work.

June 23: The June-July water supply outlook for Boysen Reservoir was re-evaluated, making it possible to reduce releases out of Boysen Reservoir. In response, releases to the Bighorn River were gradually reduced to 14,000 cfs to bring immediate relief to the river.

June 28: Releases out of Boysen Reservoir to the Wind/Bighorn River were gradually reduced. In response, the releases out of Yellowtail Dam to the Bighorn River were reduced to 13,000 cfs.

June 29: Releases out of Boysen Reservoir to the Wind/Bighorn River continued to be gradually reduced. In response, the releases out of Yellowtail Dam to the Bighorn River were gradually reduced to 12,000 cfs. Repairs to the Bighorn Canal were also completed. The BIA requested diversions to the Bighorn Canal be started and gradually increased to 100 cfs.

June 30-July 2: Streamflows downstream of Yellowtail Dam continued to recede. To support the USACE with flood control regulation of the Missouri River Basin, releases to the Bighorn River were gradually decreased to 8,500 cfs to store as much water in the exclusive flood pool as practical.

July 6: Streamflow measurements indicated actual flows in the Bighorn River were lower than anticipated. Turbine releases were adjusted to maintain total release out of Bighorn Lake at 8,850 cfs (8,500 cfs to the Bighorn River and 350 cfs to the Bighorn Canal).

July 11: As inflows into Boysen and Buffalo Bill increased, releases out of these were increased. To control the rate of fill of storage in Bighorn Lake, total release out of Bighorn Lake was increased to 10,400 cfs (10,000 cfs to the Bighorn River and 400 cfs to the Bighorn Canal).

July12-14: Releases to the Bighorn River and Bighorn Canal were adjusted periodically to allow for chemical treatment of the heavy algae growth in the Bighorn Canal.

July 14-19: As inflows into Boysen and Buffalo Bill continued to increase, releases out of these were increased further. To control the rate of fill of storage in Bighorn Lake, total release out of Bighorn Lake was gradually increased to 12,425 cfs (12,000 cfs to the Bighorn River and 425 cfs to the Bighorn Canal).

July 28: The high elevation snowmelt was essentially over. Releases out of Boysen and Buffalo Bill Reservoirs were being gradually reduced. To slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was gradually reduced to 10,425 cfs (10,000 cfs to the Bighorn River and 425 cfs to the Bighorn Canal).

August 2-4: Streamflows in the Bighorn River Basin was also continuing to recede. To slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was gradually decreased to 9,425 cfs (9,000 cfs to the Bighorn River and 425 cfs to the Bighorn Canal).

August 8-10: Maintenance was scheduled on the Yellowtail Dam powerplant, limiting and restricting power turbine releases to three-unit capacity. Streamflows in the Bighorn River Basin was also continuing to recede. To slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was gradually decreased to 8,325 cfs (8,000 cfs to the Bighorn River and 325 cfs to the Bighorn Canal).

August 11: Streamflows in the Bighorn River Basin was continuing to recede. To slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was decreased to 7,170 cfs (6,745 cfs to the Bighorn River and 425 cfs to the Bighorn Canal).

August 15: Recent streamflow measurements indicated actual river flows are lower than anticipated. Streamflows in the Bighorn River Basin was also continuing to recede. To adjust for the variation in flows and slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was decreased to 6,670 cfs (6,245 cfs to the Bighorn River and 425 cfs to the Bighorn Canal).

August 17-22: Recent streamflow measurements indicated actual river flows are lower than anticipated. Streamflows in the Bighorn River Basin was also continuing to recede. To adjust for the variation in flows and slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was gradually decreased to 5,425 cfs (5,000 cfs to the Bighorn River and 425 cfs to the Bighorn Canal).

August 25: Streamflows in the Bighorn River Basin was continuing to recede. To slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was decreased to 4,925 cfs (4,500 cfs to the Bighorn River and 425 cfs to the Bighorn Canal).

August 29: Streamflows in the Bighorn River Basin was continuing to recede. To slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was decreased to 4,425 cfs (4,000 cfs to the Bighorn River and 425 cfs to the Bighorn Canal).

August 26: Recent streamflow measurements indicated actual river flows are lower than anticipated. To adjust for the variation in flows and slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was gradually decreased to 4,605 cfs (4,200 cfs to the Bighorn River and 405 cfs to the Bighorn Canal).

September 1: Recent streamflow measurements indicated actual river flows are lower than anticipated. To adjust for the variation in flows and slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was gradually decreased to 4,600 cfs (4,200 cfs to the Bighorn River and 400 cfs to the Bighorn Canal).

September 8: The BIA requested a reduction in deliveries to the Bighorn Canal. In response, the total release out of Bighorn Lake was decreased to 4,550 cfs (4,200 cfs to the Bighorn River and 350 cfs to the Bighorn Canal).

September 9: Recent streamflow measurements indicated actual river flows are lower than anticipated. Streamflows in the Bighorn River Basin continue to recede. To adjust for the variation in flows and slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was gradually decreased to 4,350 cfs (4,000 cfs to the Bighorn River and 350 cfs to the Bighorn Canal).

September 13-15: Irrigation demands are gradually decreasing and the BIA requested a gradual reduction in deliveries to the Bighorn Canal. Streamflows in the Bighorn River Basin also continue to recede. To adjust for the variation in flows and slow the evacuation rate of storage in Bighorn Lake, total release out of Bighorn Lake was gradually decreased to 3,750 cfs (3,500 cfs to the Bighorn River and 250 cfs to the Bighorn Canal).

September 14-October 5: To allow for inspection and maintenance on the Yellowtail Dam spillway tunnel and spillway stilling basin, the level of the Afterbay was maintained no lower than elevation 3184 and no higher than elevation 3190.

September 19: The BIA requested a reduction in deliveries to the Bighorn Canal. In response, the total release out of Bighorn Lake was decreased to 3,650 cfs (3,500 cfs to the Bighorn River and 150 cfs to the Bighorn Canal).

September 19: Power generation indicated actual river flows are lower than anticipated. To adjust for the variation in flows, total release out of Bighorn Lake was maintained at 3,650 cfs (3,500 cfs to the Bighorn River and 150 cfs to the Bighorn Canal).

September 26: With the 2011 irrigation season essentially over, the BIA requested all diversions to the Bighorn Canal be gradually discontinued for the year. In response, the total release was gradually reduced to 3,500 cfs (3,500 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

September 27: Yellowtail Field Office staff conducted a black start test that required all water released through the powerplant turbines to be discontinued and released through the river outlet gates at 3,000 cfs for approximately 3 hours. After the black start test was completed, total release out of Bighorn Lake was increased and maintained at 3,500 cfs (3,500 cfs to the Bighorn River and 0 cfs to the Bighorn Canal).

November 3: Reclamation hosted the annual Bighorn Basin Fall Water Supply Meeting at the Billings Hotel Convention Center to discuss operations of Bighorn Lake and Bighorn River. Dan Jewell, Area Manager of the MTAO and 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 fall and winter season of 2011-2012.

Additional hydrologic and statistical information pertaining to the operations of Bighorn Lake during 2011 can be found on Table MTT11 and MTG12.

For more detailed information on the operations of Boysen and Buffalo Bill Reservoirs during 2011, refer to the narratives for Boysen Reservoir and Powerplant and Shoshone Project under the responsibility of the WYAO.

Table MTT11:
Hydrologic Data for Water Year 2011
Bighorn Lake (Yellowtail Dam)

NEW SEDIMENT SURVEY DATA EFFECTIVE 01/01/2011

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	3630.14	960,869	OCT 01, 2010
END OF YEAR	3640.35	1,025,004	SEP 30, 2011
ANNUAL LOW	3606.55	744,580	MAY 19, 2011
ANNUAL HIGH	3655.03	1,245,283	JUL 24, 2011
HISTORIC HIGH	3656.43	1,365,198	JUL 06, 1967

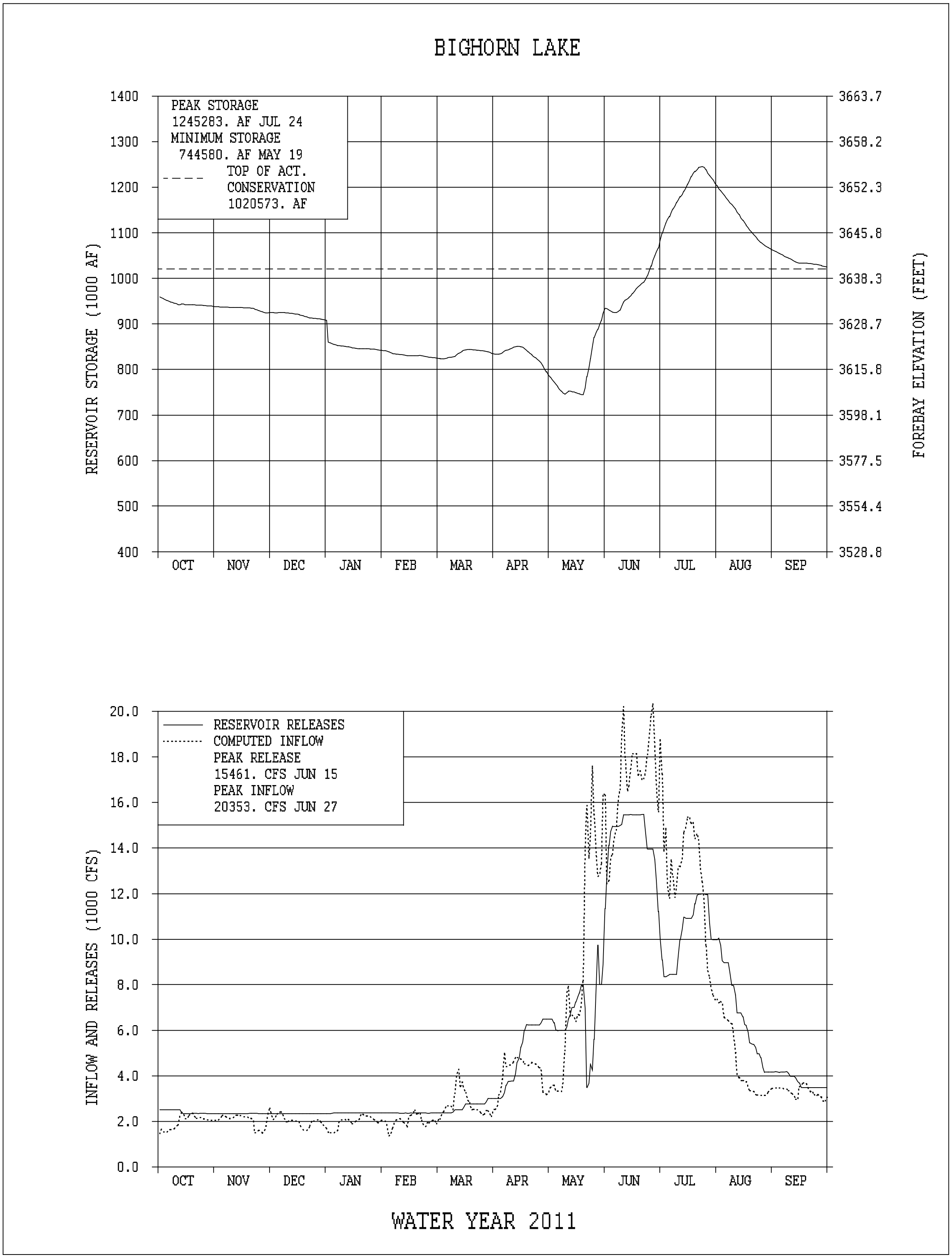
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW*	DATE
ANNUAL TOTAL (AF)	3,817,005	OCT 10-SEP 11	3,693,247	OCT 10-SEP 11
DAILY PEAK (CFS)	20,353	JUN 27, 2011	15,461	JUN 15, 2011
DAILY MINIMUM (CFS)	1,381	FEB 03, 2011	2,345	NOV 06, 2010
PEAK SPILL (CFS)			11,542	JUN 21,2011
TOTAL SPILL (KAF)			813.1	05/11-08/15/11

*Discharge to the Bighorn River

MONTH	INFLOW		OUTFLOW*				CONTENT	
	KAF	% OF AVG	CANAL KAF	% OF AVG	RIVER KAF	% OF AVG	KAF	% OF AVG
OCTOBER	122.2	70	0.0	---	148.6	87	938.2	93
NOVEMBER	122.6	84	0.0	---	140.0	80	924.9	95
DECEMBER	122.7	96	0.0	---	144.7	80	907.1	98
JANUARY	121.9	96	0.0	---	146.2	82	841.5	102
FEBRUARY	111.9	86	0.0	---	132.0	82	825.3	103
MARCH	167.4	101	0.0	---	161.2	89	836.0	106
APRIL	245.8	153	0.0	---	289.8	162	795.7	102
MAY	529.4	201	0.0	---	405.8	210	923.6	111
JUNE	1,004.2	235	0.6	3	865.1	300	1,066.6	109
JULY	792.9	275	24.3	88	630.2	220	1,209.3	123
AUGUST	279.2	177	24.5	92	405.4	231	1,062.7	110
SEPTEMBER	196.8	115	14.7	80	224.2	147	1,025.0	106
ANNUAL	3,817.0	160	64.1	59	3,693.3	159		
APRIL-JULY	2,572.3	217						

* Average for the 1967-2011 period.

Figure MTG12:
Bighorn Lake (Yellowtail Dam)



CLIMATE SUMMARY

Water year 2011 began warm and dry. October temperatures were almost six degrees warmer than normal in the Shoshone Basin and five degrees above average in the Wind River Basin. Precipitation was 85 percent of average above Buffalo Bill, but only 25 percent of average in the Boysen watershed. The first significant snowfall event of the season did not occur until the 24 of October. Following this storm, dry air returned to the Bighorn Basin with little precipitation falling until mid-November when a series of storms moved through western and central Wyoming. Appreciable snowfall from storms that began on November 14, 19, 22, and 27 all added to the early season snowpack with the storms on the 19 and 27 each dropping well over a foot of snow in the southern end of the Wind River Mountains.

In the Shoshone Basin, precipitation at lower elevation weather stations was well above average, while November temperatures and mountain precipitation were right at the 30-year average. Temperatures in the Wind River Basin were about two degrees warmer than normal with above average precipitation. On December 1, the snowpack above Boysen was 107 percent of average while the Buffalo Bill snowpack stood at 88 percent of average. Another storm on December 2 brought the snowpack in the Buffalo Bill watershed up to 100 percent of average with over a foot of snow falling in the mountains. The same storm also added about 10 percent to the snowpack above Boysen.

The second storm of the month moved into western Wyoming on the 14, bringing about a foot of snow to the Shoshone drainage. On the 18, a third system brought Pacific moisture to both the Shoshone and Wind River Basins, adding significantly to the mountain snowpack. The final storm of the month on the 29 gave an additional boost to the snowpack in the southern Wind River Range and as skies cleared following the storm, some of the coldest temperatures of the winter were reported in the Bighorn Basin on January 1. December temperatures averaged four to six degrees above average with over 175 percent of average precipitation in both the Shoshone and Wind River watersheds. The snowpack in the basin above Buffalo Bill Reservoir increased 21 percent during December to 109 percent of average on January 1, while snowpack in the Boysen watershed stood at 122 percent of average, a 15 percent increase for the month.

Little precipitation fell during the first half of January and the snowpack lost ground to average. Back to back storms brought significant snowfall to western and central Wyoming between the 16 and the 22 with the Togwotee Pass SNOTEL site receiving 2 feet of snow over the week. Dry air prevailed for the remainder of the month and losses during the month exceeded the gains from the week of storms. On February 1, snowpack above Boysen was down to 105 percent of average and the Buffalo Bill snowpack was 104 percent of average. Temperatures during January were about two degrees above average.

Unsettled conditions returned in February with widespread light to moderate snowfall from the 4 through the 8. Storms on the 19 and 25 brought additional snow, but less than average accumulation occurred in the mountains of both the Wind and Shoshone River Basins. While precipitation in the mountains was below average, lower elevation weather stations recorded well above average precipitation.

February was much colder than normal, with temperatures about seven degrees below average. Many stations reported lows in the -25 to -35 degree range. The first major storm on March 15 and 16 brought about a foot of new snow to the mountains and was accompanied by winds that approached 70 miles per hour. Strong winds continued to follow storms on the 21 and 29 with gusts exceeding 50 miles per hour at many locations. March temperatures were about two degrees warmer than normal and the snowpack in both the Wind and Shoshone drainages was about 105 percent of average on April 1.

While the wind didn't stop blowing in April, at least it was blowing some warmer air into the state. Worland and Riverton both reported record high temperatures of 77 and 72 degrees, respectively on April 2. Both towns also saw wind gusts in the range of 50 miles per hour on the 2, while the wind speed in Lander reached 60 miles per hour ahead of an approaching Pacific cold front. Snow began falling on April 4 and continued through the 10. Snowfall totals for the area around Togwotee Pass reached 4 feet with many locations in the Wind River Range receiving upwards of 2 feet of snow. At lower elevations the precipitation fell in the form of rain, as Lander and Riverton both reported their first thunderstorms of the season. The Absaroka Mountains above Buffalo Bill Reservoir also received about 2 feet of new snow. A pattern of moist westerly air bringing snow, followed by a few days of clearing, was the norm for the last half of April and the snowpack began to steadily increase. During the month, the snowpack in the Buffalo Bill watershed increased 25 percent to 130 percent of average, while the Boysen snowpack rose 20 percent to 124 percent of average.

The snowpack continued to build during May as precipitation in the Boysen watershed was over three times normal with over twice the normal precipitation falling above Buffalo Bill. In the Boysen drainage, Burris, Dubois, Lander, and Riverton all reported the highest May precipitation of record. A slow moving storm system brought heavy rain and snow to western Wyoming on May 10, with around 3 inches of rain falling in the Dubois area and over 2 inches falling on the North Fork of the Shoshone River above Buffalo Bill. Precipitation, either rain or snow, fell on almost every day somewhere in the Bighorn Basin during the rest of May. A major spring storm on Memorial Day weekend dropped 20 inches of snow on the St. Lawrence and South Pass SNOTEL sites in the Wind River Mountains and 17 inches of snow at the Marquette SNOTEL above Buffalo Bill. The Lander area received about 2 ½ inches of rain from the storm with widespread rainfall amounts in excess of 1 inch. Over the month, temperatures were about five degrees below average with only about 3 days during the month where the high was above 70 degrees. On June 1, the snowpack in the Boysen and Buffalo Bill watersheds was 309 and 210 percent of average, respectively.

Temperatures during June remained below average and dry air dominated the majority of the month. Precipitation in the Buffalo Bill drainage was about 90 percent of average with Boysen closer to 50 percent of normal. As temperatures finally warmed, flow in the Wind and Shoshone Rivers steadily increased through the month. On June 30, the Wind River at Riverton rose above flood stage and flooding continued until July 11. The instantaneous peak discharge at Riverton of 11,200 cfs occurred on July 2 at a stage of 11.8 feet, which was 2.8 feet above flood stage.

The peak daily inflow to Boysen Reservoir of 16,501 cfs also occurred on July 2. The maximum daily inflow to Buffalo Bill during the runoff of 16,237 cfs occurred on June 30. For the month, temperatures in both the Boysen and Buffalo Bill watersheds were about one degree below average. Precipitation during the July through September period was below average as was the temperature.

The 2011 mountain snow water content for the drainage basins in Wyoming is shown on Table WYT1. The 2011 water supply forecasts are shown on Table WYT2 and the 2011 precipitation in inches and the percent of average is shown on Table WYT3.

TABLE WYT1

2011 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	5.60	100	6.93	94	8.48	94	10.55	94	12.57	121
BOYSEN	7.99	122	9.82	105	11.91	104	14.59	104	17.58	124
BUFFALO BILL	9.56	109	12.70	104	14.86	98	19.26	105	25.33	130

[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, Deer Park, Hobbs Park, Little Warm, St. Lawrence Alt, South Pass, Togwotee Pass, and Townsend Creek;

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

TABLE WYT2

2011 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
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG	FORECAST RECEIVED
BULL LAKE	150	107	145	104	145	104	150	108	160	115	195	140	186.9	134	125
BOYSEN	610	110	580	104	600	108	670	121	800	144	1175	211	994.7	179	148
BUFFALO BILL	720	109	780	118	780	118	840	127	970	147	1110	168	1230.4	186	146

Averages are based on the 1981-2010 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	0.98	85	2.24	203	1.89	184	1.11	105	1.26	147	1.77	159	2.67	194	4.76	231	1.89	88	0.66	45	1.31	106	0.51	42
YEAR-TO-DATE PRECIP AND % OF AVERAGE	0.98	85	3.22	143	5.11	156	6.22	144	7.48	144	9.25	147	11.92	155	16.68	171	18.57	156	19.23	144	20.54	141	21.05	133
BOYSEN																								
MONTHLY PRECIP AND % OF AVERAGE	0.22	25	0.53	115	0.53	178	0.28	117	0.72	212	0.25	41	1.03	86	5.48	304	0.68	53	0.10	11	0.59	98	0.40	40
YEAR-TO-DATE PRECIP AND % OF AVERAGE	0.22	25	0.75	57	1.28	79	1.56	84	2.28	104	2.53	90	3.56	89	9.04	155	9.72	137	9.82	123	10.41	121	10.81	113
BULL LAKE																								
MONTHLY PRECIP AND % OF AVERAGE	0.20	28	0.55	137	0.44	193	0.23	126	0.51	181	0.35	77	1.40	123	5.21	297	0.69	53	0.11	12	0.78	110	0.43	40
YEAR-TO-DATE PRECIP AND % OF AVERAGE	0.20	28	0.75	67	1.19	88	1.42	93	1.93	107	2.28	101	3.68	108	8.89	173	9.58	149	9.69	131	10.47	129	10.90	119
MOUNTAIN PRECIPITATION [2]																								
BUFFALO BILL																								
MONTHLY PRECIP AND % OF AVERAGE	2.10	88	3.70	100	5.00	161	3.40	113	2.20	88	4.20	150	6.60	194	6.60	174	2.40	80	0.70	32	1.00	63	0.80	36
YEAR-TO-DATE PRECIP AND % OF AVERAGE	2.10	88	5.80	95	10.80	117	14.20	116	16.40	112	20.60	118	27.20	130	33.80	137	36.20	131	36.90	123	37.90	120	38.70	115
BOYSEN																								
MONTHLY PRECIP AND % OF AVERAGE	1.70	81	3.10	103	3.60	144	1.70	68	2.00	91	2.90	100	4.20	120	7.70	226	1.90	79	0.60	35	1.00	71	0.90	45
YEAR-TO-DATE PRECIP AND % OF AVERAGE	1.70	81	4.80	94	8.40	111	10.10	100	12.10	98	15.00	99	19.20	103	26.90	122	28.80	118	29.40	112	30.40	110	31.30	106
BULL LAKE																								
MONTHLY PRECIP AND % OF AVERAGE	1.20	60	2.30	105	2.40	141	1.10	69	1.50	94	2.10	88	3.40	106	7.80	229	1.90	83	0.70	47	0.90	64	1.20	63
YEAR-TO-DATE PRECIP AND % OF AVERAGE	1.20	60	3.50	83	5.90	100	7.00	93	8.50	93	10.60	92	14.00	95	21.80	120	23.70	116	24.40	111	25.30	109	26.50	105

[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, Deer Park, Hobbs Park, Little Warm, St. Lawrence Alt, South Pass, Togwotee Pass, and Townsend Creek;
Buffalo Bill.........Blackwater, Evening Star, Kirwin, Marquette, Sylvan Lake, Sylvan Road, and Younts Peak

Averages for Valley Precipitation are based on the 1980-2009 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[1]					
Reservoir	**Local**	**Main Stem**	**2011 Total**	**Previous Accumulation[3]**	**1950 - 2011 Accumulation Total**
Bull Lake[2]	$ 180,700	$ 0	$ 180,700	$ 3,040,300	$ 3,221,000
Boysen	$ 1,533,900	$ 2,089,500	$ 3,623,400	$106,379,800	$110,003,200
Buffalo Bill[2]	$14,157,200	$ 0	$14,157,200	$ 14,202,000	$28,359,200

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 2011.
2/ No space is allocated to flood control, but some flood protection is provided by operation for other purposes.
3/ Adjusted in 2006 by 0.1 to 0.5 to account for previous rounding of cumulative total to nearest 1.0.

UNIT OPERATIONAL SUMMARIES FOR WATER YEAR 2011

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 73,000 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

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.

Bull Lake held 65,846 AF of water at the start of water year 2011, which was 87 percent of the normal end of September content and 43 percent of capacity. Irrigation on the Riverton Unit ended on September 30 and the release from Bull Lake was reduced at that time to conserve the remaining storage in Bull Lake.

During water year 2010, Midvale entered into an agreement with Reclamation that allowed the storage of Boysen water in Bull Lake by exchange. Because of this agreement, Bull Lake ended the water year at a higher content. Once the irrigation season ended, diversion into the Wyoming Canal continued into mid-October as Pilot Butte Reservoir was filled. Bull Lake releases for irrigation ended on September 30, 2010, and the Boysen water in Bull Lake was transferred back to Boysen at a rate of approximately 20 cfs to provide a winter flow in Bull Lake Creek. Inflow during the October, November, and December was greater than the release and the content of Bull Lake began to increase as soon as irrigation releases ended. By the end of December, storage in Bull Lake had increased to 70,986 AF, which was 94 percent of average.

On January 1, 2011, snowpack in the basin above Bull Lake was 100 percent of average. Water supply forecasts of the April-July snowmelt runoff were prepared each month, beginning in January and continuing through June. The January forecast indicated the April-July snowmelt runoff would be approximately 150,000 AF, which was 107 percent of average. Precipitation in the mountains above Bull Lake was below average during January and the snowpack decreased to 94 percent of average on February 1. The February 1 snowmelt runoff forecast was reduced slightly to 145,000 AF. Inflow during the January through March period was slightly less than the outflow and at the end of March the reservoir held 70,915 AF. February precipitation was well above average in the Wind River valley but slightly below average in the mountains. The snowpack remained near 94 percent of average during all of February and March.

The March 1 forecast held at 145,000 AF and the April 1 forecast was increased to 150,000 AF. Precipitation began falling in April and the snowpack increased 27 percent compared to average during the month. Midvale began diverting water into the Wyoming Canal on April 18 to fill the remaining space in Pilot Butte Reservoir and flush the canal system. Above average snowfall in the mountains and rain on the district lands delayed the need for irrigation water and irrigation deliveries weren't required until May 2.

With the snowpack at 121 percent of average on May 1, the May 1 forecast of April-July snowmelt runoff was increased to 160,000 AF, with about 2,300 AF of the expected runoff coming in to Bull Lake during April. Releases from Bull Lake were increased during the last week of April in anticipation of spring runoff and at the end of the month the storage in Bull Lake was 67,962 AF. Precipitation during May was almost three times what normally falls in the valley and the mountains received well above average precipitation as well. The snowpack continued to build well into the month with cold temperatures limiting the runoff. The snowpack peaked on May 21, well over a month later than normal and inflow for the month of May was only 41 percent of average.

On June 1, the snowpack above Bull Lake was 336 percent of average. With all that snow remaining so late in the season, the June 1 forecast was increased to 195,000 AF of runoff during the April-July period, which was 140 percent of average. Temperatures remained fairly cool during the first part of June and inflow to Bull Lake gradually increased through the month. It took the entire month for the runoff to reach its peak of 3,340 cfs on June 30. Releases during June were relatively low and storage in Bull Lake almost doubled during the month, standing at 123,759 AF on June 30.

High flows into the reservoir continued during July and releases were quickly increased to a maximum release of 2,191 cfs on July 1. Reservoir inflow was closely monitored during the runoff and releases were adjusted as necessary to slowly fill Bull Lake. By the end of July, Bull Lake was within 3 feet of being full and still rising. July inflow was 101,728 AF, which were 220 percent of average and the highest July inflow of record going back to 1936. Bull Lake reached its maximum elevation for the year of 5802.92 feet on August 3 with a content of 145,943 AF. At its maximum, Bull Lake was 2.08 feet below the top of the active conservation pool and 96 percent full.

The August release from Bull Lake averaged 707 cfs and with inflows dropping through the month, Bull Lake storage was drawn down to 128,205 AF on August 31. This was 124 percent of average content for the end of August. Bull Lake releases averaged 740 cfs for September and the reservoir level fell to 5784.50 feet with 92,967 AF of water in storage on September 30.

Actual April-July inflows totaled 186,996 AF, 134 percent of average. Total inflow to Bull Lake for the water year was 236,011 AF, which was 126 percent of average. The flow of the Wind River above the mouth of Bull Lake Creek during the April-July period was estimated to be 163 percent of average, totaling 654,621 AF. The total diversion into the Wyoming Canal for the April-September period was 328,630 AF, 117 percent of average

Additional hydrologic and statistical information pertaining to Bull Lake operations during water year 2011 can be found in Table WYT4 and Figure WYG1.

Pilot Butte Reservoir

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.

Pilot Butte Reservoir began water year 2011 with a total storage content of approximately 17,441 AF at elevation 5439.28 feet. Releases from Pilot Canal for the 2010 irrigation season ended on September 30, 2010, but Midvale continued diverting water into the Wyoming Canal in order to refill Pilot Butte. Diversions continued until October 16 when Pilot Butte reached 28,301 AF of water at elevation 5453.75 feet. Once diversions into Pilot Butte were discontinued, the reservoir level began to slowly fall through the winter due to evaporation. By the end of March, evaporation had reduced the content of the reservoir to 27,408 AF. Diversion into Wyoming Canal resumed on April 18 to continue filling Pilot Butte and flush the canal system. Irrigation deliveries began on May 2. Storage in Pilot Butte at the end of April was 24,522 AF at 5449.07 feet. During the period in April and May before the runoff started, Pilot Butte storage was utilized to meet irrigation demand and was drawn down to 19,309 AF on May 23. As flows in the river increased, additional water was stored in Pilot Butte and on August 6 the maximum content for the year of 30,729 AF was reached. To help meet demand in August and September Pilot Butte storage was called upon, reducing storage in the reservoir to 23,537 AF at 5447.80 feet on September 30, 2011. Irrigation deliveries on the Riverton Unit ended on October 6, 2011.

Pilot Butte Powerplant was unavailable for service during water year 2011 and did not generate any electricity. In June of 2009, both units at Pilot Butte Powerplant were placed in "Mothballed" status and a determination of whether the units will be returned to service is pending.

Additional hydrologic and statistical information pertaining to Pilot Butte Reservoir during water year 2011 can be found in Table WYT5 and Figure WYG2.

Table WYT4:
Hydrologic Data for Water Year 2011
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	5773.61	65,846	OCT 01, 2010
END OF YEAR	5784.50	92,967	SEP 30, 2011
ANNUAL LOW	5770.63	59,005	MAY 18, 2011
HISTORIC LOW*	5743.03	6,228	MAR 31, 1950
ANNUAL HIGH	5802.92	145,943	AUG 03, 2011
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)	236,011	OCT 10-SEP 11	208,888	OCT 10-SEP 11
DAILY PEAK (cfs)	3,340	JUN 30, 2011	2,191	JUL 1, 2011
DAILY MINIMUM (cfs)	7	JAN 22, 2011	16	OCT 14, 2010
PEAK SPILLWAY FLOW (cfs)			0	
TOTAL SPILLWAY FLOW (AF)			0	

	INFLOW		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	4.0	71	1.3	19	68.6	92
NOVEMBER	2.3	72	1.3	53	69.6	92
DECEMBER	2.6	103	1.2	61	71.0	94
JANUARY	1.6	77	1.2	61	71.4	94
FEBRUARY	1.0	62	1.1	69	71.3	94
MARCH	1.4	79	1.8	97	70.9	93
APRIL	2.3	63	5.3	143	68.0	90
MAY	11.5	41	15.3	103	64.1	72
JUNE	71.4	116	11.8	48	123.8	98
JULY	101.7	220	81.1	186	144.4	112
AUGUST	27.3	130	43.5	93	128.2	124
SEPTEMBER	8.8	93	44.1	120	93.0	123
ANNUAL	236.0	126	208.9	112		

APRIL - JULY INFLOW (AF)	
ACTUAL	AVERAGE
186,996	139,600

* Average for the 1981-2010 period

Figure WYG1:
Bull Lake Reservoir

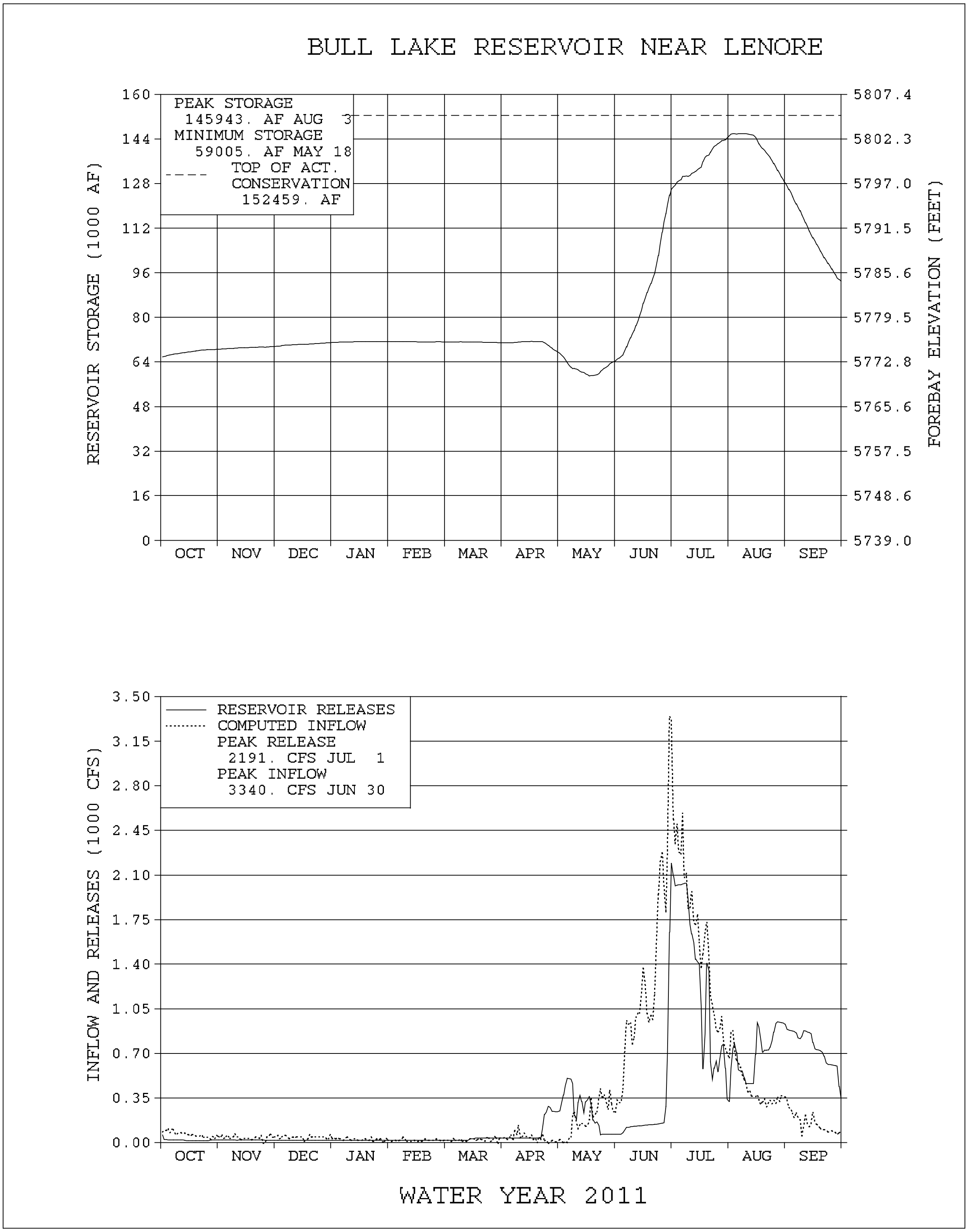


Table WYT5:
Hydrologic Data for Water Year 2011
Pilot Butte Reservoir

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

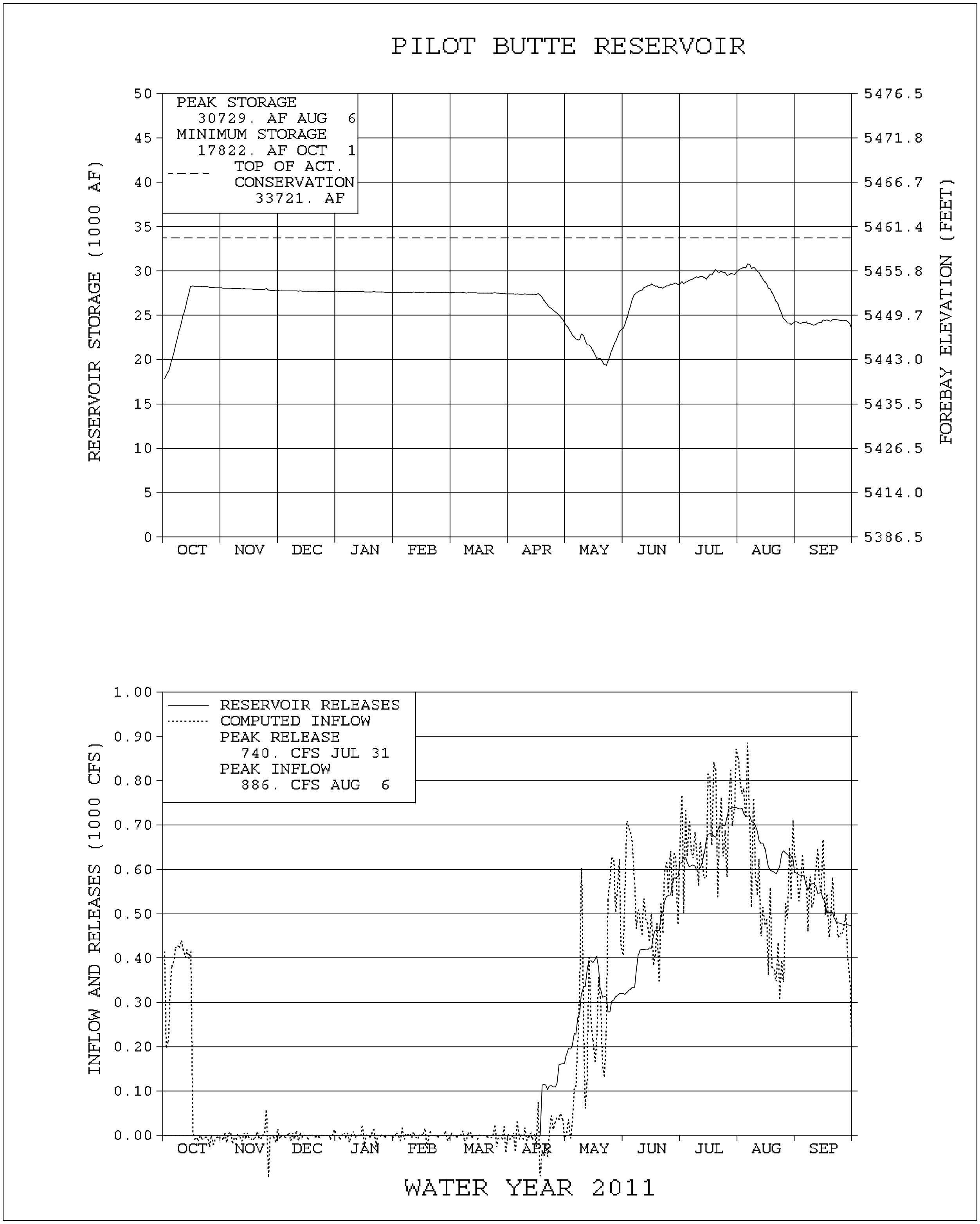
STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	5439.28	17,441	OCT 01, 2010
END OF YEAR	5447.80	23,537	SEP 30, 2011
ANNUAL LOW	5439.28	17,441	OCT 01, 2010
HISTORIC LOW	5409.80	3,748	DEC 01, 2006
ANNUAL HIGH	5456.61	30,729	AUG 06, 2011
HISTORIC HIGH	5460.60	37,465	APR 20, 1988

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	166,905	OCT 10-SEP 11	160,370	OCT 10-SEP 11
DAILY PEAK (cfs)	886	AUG 06, 2011	740	JUL 31, 2011
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	11.1	100	0.0	N/A	28.1	106
NOVEMBER	-0.3	N/A	0.0	N/A	27.8	100
DECEMBER	-0.1	N/A	0.0	N/A	27.7	100
JANUARY	-0.1	N/A	0.0	N/A	27.6	99
FEBRUARY	-0.0	N/A	0.0	N/A	27.6	98
MARCH	-0.1	N/A	0.0	N/A	27.4	93
APRIL	0.1	1	2.9	51	24.5	80
MAY	17.4	74	18.6	68	23.3	87
JUNE	31.5	85	26.4	77	28.4	95
JULY	42.2	102	40.7	89	29.9	118
AUGUST	34.7	107	40.4	111	24.2	114
SEPTEMBER	30.7	131	31.3	118	23.5	130
ANNUAL	166.9	93	160.4	90		

* Negative values are the result of calculated inflow based on reservoir release and change in reservoir content.
** Average for the 1981-2010 period.

Figure WYG2:
Pilot Butte Reservoir



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 ½ 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.

Water year 2011 began with 639,219 AF of water stored in Boysen Reservoir, which was 106 percent of the 30 year average. The corresponding reservoir elevation of 4719.48 feet was 5.52 feet below the top of the joint use pool. The winter release was set on September 21, 2010, when the release from the dam was reduced to 800 cfs. Precipitation in the Boysen watershed was below the 30 year average during the October through December period as were inflows. Releases were maintained at 800 cfs and the reservoir level dropped 1.20 feet to 4718.28 feet at the end of December, with corresponding reservoir storage of 618,608 AF.

Forecasts of April-July snowmelt runoff were prepared at the beginning of each month beginning in January and continuing through June. On January 1, the snowpack in the mountains above Boysen was 122 percent of average and the forecast indicated approximately 610,000 AF of water, 110 percent of average, would enter Boysen Reservoir during the April-July snowmelt runoff period. January inflow averaged less than 650 cfs and with 800 cfs being released, reservoir storage fell to 608,893 AF on January 31. Precipitation during January was above average at lower elevations but the mountains only received 68 percent of normal January precipitation and the snowpack decreased 17 percent during the month to 105 percent of average on February 1. As a result of the declining conditions, the February 1 snowmelt runoff forecast was reduced by 30,000 AF to 580,000 AF, which was 104 percent of average. During February precipitation was about 90 percent of average in the mountains with temperatures in the basin about seven degrees below normal.

The snowpack hovered around 105 percent of average during the entire month and was 104 percent of average on March 1. The March 1 forecast was increased by 20,000 AF to 600,000 AF. The trend established in February continued into March, with the snowpack holding at 104 percent of average through the entire month as mountain precipitation was right at 100 percent of average. While the snowpack was holding slightly above average, overall conditions seemed to be improving and the April 1 snowmelt runoff forecast was increased to 670,000 AF, 121 percent of average. At the end of March, the reservoir held 595,410 AF of water at elevation 4716.88 feet.

With the expectation of above average inflow during the runoff period, releases from the Dam were increased to 1,000 cfs beginning on April 1 with an additional increase to 1,200 cfs on the 2. The 1,200 cfs release continued until April 5 when releases were increased substantially for a short period to provide a flushing flow, which was requested by the Wyoming Game and Fish Department. Flushing flows are designed to simulate high runoff events that occurred in the river prior to flows being controlled by the dam. The rapidly increasing flows flush the fine sediment from the spawning gravels in the river, improving the spawning habitat for trout. The flushing flow began early on the morning of April 5 when releases were increased from 1,200 cfs to 3,000 cfs, with another increase to 5,000 cfs occurring 5 hours later. The 5,000 cfs release was maintained for 10 hours and then gradually reduced back to 1,200 cfs. During the flushing flow, approximately 5,200 AF of water was released above the 1,200 cfs release. Mountain snowfall during April was above average and the snowpack rose to 124 percent of average on May 1. The release was held at 1,200 cfs for most of April, with increases up to powerplant capacity made during the last week of the month. April inflow was 71 percent of average with above average releases and the reservoir level fell to 550,767 AF at 4714.02 feet on April 30.

The snowpack made a 20 percent gain during April and with a wetter weather pattern developing in the basin, the May forecast of April-July snowmelt runoff was significantly increased. The May 1 forecast of 800,000 AF was a 130,000 AF increase over what was expected on April 1. With improving conditions, releases from the dam were increased to 2,400 cfs on May 1. Storms continued to bring moisture to the basin and temperatures that were well below normal held the snowpack in the mountains. The snowpack peaked on May 21 following a storm that brought over 3 inches of precipitation to Lander. Rainfall runoff brought reservoir inflows up following the storm but the colder than normal temperatures kept the snowmelt runoff in check until the very end of the month. With almost twice the normal amount of snow sitting in the mountains so late in the season, releases were stepped up to 4,200 cfs by May 25, with the spillway put into operation on May 23. The total inflow for May was only 75 percent of average with over 300 percent of average precipitation at low elevation sites and 226 percent of average precipitation in the mountains. The drawdown of the reservoir continued through the month in anticipation of the runoff yet to come and at end of May, Boysen held 463,262 AF of water at elevation 4707.82 feet.

On June 1, the snowpack above Boysen was 309 percent of average with almost 19 inches of snow water remaining to melt. Releases were increased through the first half of June, exceeding 5,800 cfs for a few days before reductions during the last half of the month lowered the release to 2,000 cfs by month end as requested by the Corps of Engineers to provide relief downstream to Bighorn Lake, which was experiencing high inflows due to the runoff as well as heavy rains in the area upstream of the reservoir. Sustained runoff did not get under way until the second week of June when inflows were consistently above 5,000 cfs. During the last week of June, Boysen rose over a foot a day as inflows exceeded outflow by over 8,000 cfs. Inflow during the month was 147 percent of average and by the end of June reservoir storage had increased to 556,211 AF.

High flows continued to enter Boysen in July and the reservoir was filling rapidly as the release from the dam was maintained at 2,000 cfs until July 4. Daily inflow peaked on July 2 at 16,501 cfs with reservoir storage increasing over 28,750 AF on that day. Inflows in excess of 10,000 cfs occurred from June 25 through July 11 and reservoir releases were adjusted upward on July 4 and 5 to slow the rate of fill. At the direction of the Corps of Engineers, the release from the dam was reduced to 3,000 cfs on July 6 and on July 7. Boysen Powerplant was taken off-line and all releases were made through the spillway. Making all releases through the spillway instead of utilizing the powerplant requires a larger spillway gate opening to provide the same outflow, which results in additional freeboard on the spillway gates. The reservoir level rose into the exclusive flood pool on July 9 and releases were increased as necessary to prevent overtopping of the spillway gates. The maximum daily release from the dam of 6,637 cfs occurred on July 16, which is also the day Boysen reached its maximum elevation for the year of 4727.83 feet. This was 2.83 feet into the exclusive flood control space and the highest level since July of 1995. Even with below average and well below average precipitation in June and July, respectively, the July inflow to Boysen Reservoir of 493,231 AF was the highest of record for July since 1952 when the reservoir was closed.

The reservoir held water in the flood pool from July 9 through August 3. As the runoff subsided and the reservoir level dropped, it was possible to resume releases through the powerplant on August 1. With flows into the reservoir dropping, releases were reduced accordingly and the spillway gates were closed on August 8. Further reductions were made through the month, with the outflow cut to 1,300 cfs on August 17. August inflow was 140 percent of average and the 1,300 cfs release was maintained until September 5. Releases were then gradually reduced, reaching the planned winter release of 950 cfs on September 26.

Actual inflow for the April-July period totaled 994,772 AF, which was 179 percent of average. Total inflow to Boysen during water year 2011 was 1,367,409 AF, 146 percent of average. The reservoir ended the water year at 4722.38 feet with a content of 691,545 AF. This was 115 percent of the average end of September content and 2.90 feet higher than at the end of September of 2010. The peak inflow for the year of 16,501 cfs occurred on July 2 with the maximum release of 6,637 cfs being made on July 16. During water year 2011, Boysen Powerplant generated 63,827,000 kWh of electricity, about 96 percent of average and 11,155,000 kWh less than was generated in 2010. Of the 1,315,620 AF of water released from Boysen in water year 2011, 790,160 AF was discharged through the powerplant and 525,460 AF bypassed the powerplant

Important Events in Water Year 2011

September 21, 2010: Release was set at 800 cfs as irrigation demand fell below the planned winter release of 800 cfs.

March 28, 2011: Boysen Reservoir spring water information meeting was held in Worland to discuss the water supply and proposed operation of Boysen Reservoir in 2011.

April 1, 2011: The release from the Dam was increased above the winter release in anticipation of above average snowmelt runoff.

April 5 – April 6, 2011: Reservoir releases were adjusted as requested by Wyoming Game and Fish to provide a flushing flow in the river below Boysen Dam.

May 23 – August 8, 2011: Releases through the spillway were made to control the reservoir level.

July 7 – July 31, 2011: Boysen Powerplant was off-line and all releases were made through the spillway.

July 9 – August 4, 2011: Water was held in the Exclusive Flood Pool at Boysen Reservoir.

July 16, 2011: Boysen Reservoir reached a maximum elevation for the water year of 4727.83 feet.

September 26, 2011: Release was set at 950 cfs as irrigation demand fell below the planned winter release of 950 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 2011
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	4719.48	639,219	OCT 01, 2010
END OF YEAR	4722.38	691,545	SEP 30, 2011
ANNUAL LOW	4705.29	430,856	JUN 07, 2011
HISTORIC LOW ELEVATION *	4684.18		MAR 18, 1956
HISTORIC LOW CONTENT *		235,737	SEP 24, 2002
ANNUAL HIGH	4727.83	798,550	JUL 16, 2011
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)	1,367,409	OCT 10-SEP 11	1,315,620*	OCT 10-SEP 11
DAILY PEAK (cfs)	16,501	JUL 02, 2011	6,637	JUL 16, 2011
DAILY MINIMUM (cfs)	62	APR 07, 2011	742	FEB 28, 2011
PEAK SPILLWAY FLOW (cfs)			6,637	JUL 16, 2011
TOTAL SPILLWAY FLOW (AF)			428,806	MAY 23-AUG08

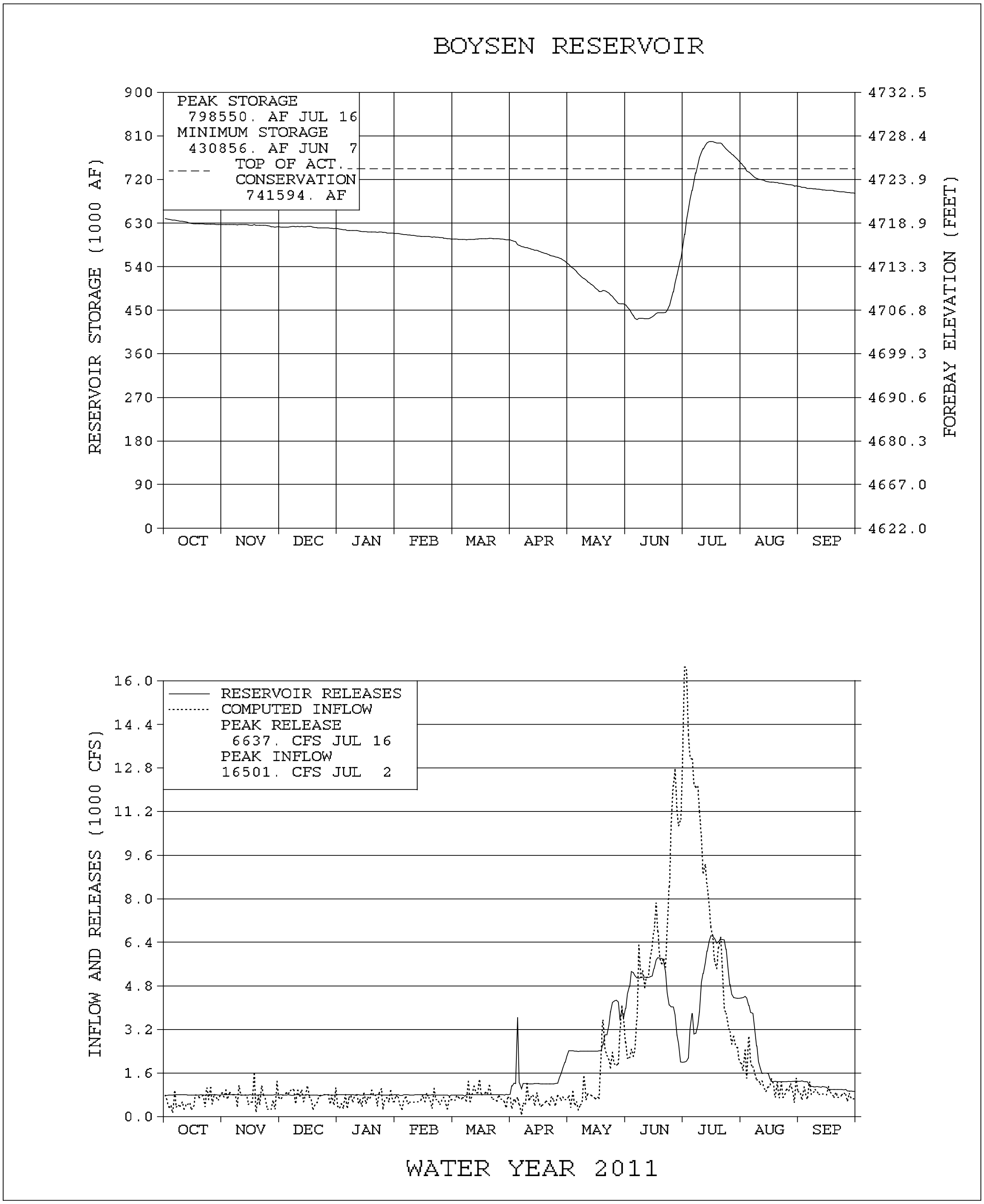
* Of the 1,315,620 AF of water released from Boysen Reservoir, 525,460 AF bypassed the powerplant.

	INFLOW		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	36.8	62	48.9	80	627.1	105
NOVEMBER	42.2	86	47.4	87	621.8	105
DECEMBER	45.6	121	48.8	88	618.6	108
JANUARY	39.3	107	49.0	94	608.9	109
FEBRUARY	33.0	88	44.0	93	597.9	109
MARCH	46.7	90	49.2	83	595.4	110
APRIL	34.9	71	79.6	127	550.8	105
MAY	90.1	75	177.6	183	463.3	84
JUNE	376.5	147	283.5	190	556.2	85
JULY	493.2	377	292.3	212	757.6	117
AUGUST	79.7	140	131.1	148	706.2	114
SEPTEMBER	49.3	94	64.0	90	691.5	115
ANNUAL	1,367.4	146	1,315.6	140		

APRIL - JULY INFLOW (AF)	
ACTUAL	AVERAGE
994,772	555,900

* Average for the 1981-2010 period

Figure WYG3:
Boysen Reservoir



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. 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 Owl Creek Irrigation District under contract with Reclamation. 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 2011 was 339 AF at elevation 6357.80 feet. The reservoir level remained stable through the winter, with 330 AF at elevation 6357.50 feet at the end of February. The reservoir level fluctuated during March, April, and May but storage at the end of May of 327 AF was essentially the same as the end of February content. Releases for irrigation began in May, but as inflows began to increase in June, releases were also increased to slow the rate of fill. As runoff got under way, inflow to Anchor rose above 100 cfs on June 7 and remained near or above 100 cfs through July 19, with the peak inflow for the year of 487 cfs occurring on June 22. By the end of June, the reservoir elevation was approaching 6400 feet and rising. To further slow the rise, releases were increased, reaching a maximum of 218 cfs on June 30. As the reservoir filled, Bureau of Reclamation and Owl Creek Irrigation District staff closely monitored the inflow and was in communication to discuss releases from the dam in order to store as much water as possible without exceeding elevation 6412.80 feet. The reservoir reached its maximum content for the year of 7,009 AF on July 15 at elevation 6411.45 feet. This was 1.35 feet below the elevation where water would begin to flow into the sinkhole area. As inflows declined and demand rose, storage in the reservoir fell to 6,036 AF by the end of July. Releases for irrigation drafted Anchor steadily during August and September and by the end of the water year the reservoir had been lowered to 6359.50 feet with 396 AF of storage.

Hydrologic and statistical data pertaining to Anchor Reservoir operations during water year 2011 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 2011
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	6357.80	339	OCT 01,2010
END OF YEAR	6359.50	396	SEP 30, 2011
ANNUAL LOW	6350.91	168	MAY 12, 2011
HISTORIC LOW			
ANNUAL HIGH	6411.45	7,009	JUL 15, 2011
HISTORIC HIGH	6418.52	9,252	JUL 03, 1967

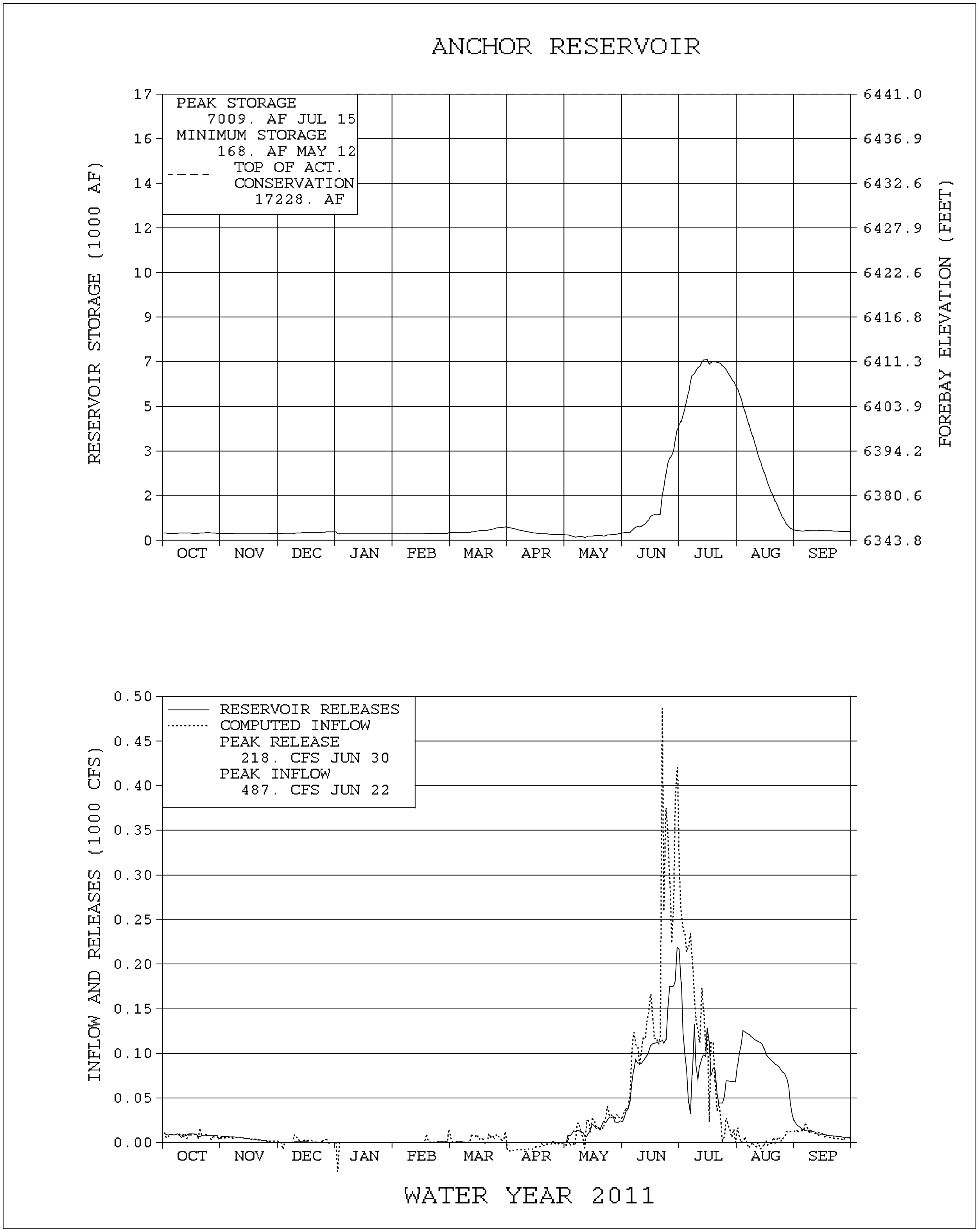
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW *	DATE
ANNUAL TOTAL (AF)	19,705	OCT 10-SEP 11	19,650	OCT 10-SEP 11
DAILY PEAK (cfs)	487	JUN 22, 2011	218	JUN 30, 2011
DAILY MINIMUM (cfs)	0	WINTER MONTHS	0	WINTER MONTHS
PEAK SPILLWAY FLOW (cfs)			0	
TOTAL SPILLWAY FLOW (AF)			0	

* 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 2011, no water flowed over the notch in the dike.

	INFLOW		OUTFLOW*		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	0.5	81	0.5	78	0.3	119
NOVEMBER	0.2	76	0.2	78	0.3	139
DECEMBER	0.1	37	0.0	0	0.4	168
JANUARY	0.0	0	0.0	0	0.3	140
FEBRUARY	0.0	0	0.0	0	0.3	129
MARCH	0.3	86	0.0	0	0.6	179
APRIL	0.0	0	0.0	0	0.3	57
MAY	1.0	26	1.0	34	0.3	20
JUNE	10.2	151	6.3	125	4.3	123
JULY	7.0	349	5.3	155	6.0	289
AUGUST	0.2	35	5.8	338	0.5	75
SEPTEMBER	0.5	93	0.6	76	0.4	122
ANNUAL	19.7	122	19.7	124		

* Average is for the 1991-2010 period. This period was used because of the availability of data at Anchor Reservoir.

Figure WYG4:
Anchor Reservoir



SHOSHONE PROJECT and 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

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

The Shoshone Powerplant was reconstructed as part of the Buffalo Bill Unit (P-S MBP) and is located on the left bank of the Shoshone River at the toe of Buffalo Bill Dam. The powerplant 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 Buffalo Bill Reservoir Enlargement Winter Release Operation Agreement, 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

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

Spirit Mountain Powerplant, Buffalo Bill Unit (P-S MBP), with a nameplate capability of 4,500 kW and a discharge capacity of 560 cfs, is a newly constructed energy dissipator powerplant located about 1 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

Buffalo Bill Dam and Reservoir is located on the Shoshone River above Cody, Wyoming, and 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 2011 was 485,526 AF of water at elevation 5372.44 feet. Irrigation releases to the Heart Mountain Canal continued until October 15, 2010. The need for irrigation releases to the Shoshone River also ended on October 15 and the release to the river was reduced to 350 cfs in accordance with the Buffalo Bill Reservoir Enlargement Winter Release Operation Agreement. At the end of October, the reservoir elevation was 5368.51 feet. By maintaining the reservoir elevation below 5370 feet during the winter months, problems associated with ice jams on the South Fork of the Shoshone River during the winter are reduced significantly. Inflows during the October through December period were below average and by the end of December storage in the reservoir had decreased to 452,334 AF. Precipitation was 156 percent of average during the period and the snowpack in the Buffalo Bill watershed stood at 109 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 720,000 AF of runoff could be expected to flow into Buffalo Bill Reservoir during the April through July period, which was 109 percent of the 30 year average.

January inflow to Buffalo Bill was above average, but less than the 350 cfs being released from the dam. At the end of January, storage in the reservoir stood at 446,081 AF of water at elevation 5366.88 feet. While precipitation in the Buffalo Bill watershed was above average, the snowpack fell five percent to 103 percent of average on February 1. Even with the snowpack dropping closer to average, the February 1 snowmelt runoff forecast was increased to 780,000 AF. The March 1 forecast remained at 780,000 AF with snowpack in the basin at 98 percent of average on March 1. The snowpack increased gradually during March to 105 percent of average on April 1. Inflow during the January through March period was about 97 percent of average while the outflow was maintained at 350 cfs until March 31 when the release was increased in anticipation of the snowmelt runoff. Storage in Buffalo Bill at the end of March was 433,323 AF at elevation 5365.05 feet.

The forecast prepared on April 1 was increased to 840,000 AF, which was 127 percent of average. April was colder than normal with almost double the average precipitation. The snowpack, which had tracked very near average through the winter, began a steady increase during April and stood at 130 percent of average on May 1. As the probability of well above average April-July inflow rose, releases from Buffalo Bill were increased. Inflow to the reservoir during April averaged about 340 cfs, 50 percent of average, while the outflow averaged almost 2,000 cfs. Releases above the capacity of the available units at the powerplants began on April 4, and were made through the 4x5 gates. By the end of April, Buffalo Bill had been drawn down to 334,999 AF to provide additional space in the reservoir to capture the expected runoff. Irrigation diversions from the Shoshone River began on April 18, while Heart Mountain Canal deliveries were initiated on April 19.

With the increasing snowpack conditions, the May 1 forecast of April-July snowmelt runoff was increased to 970,000 AF, 147 percent of average. Cool, wet weather continued into May and the snowpack continued to build until May 11. Precipitation during May was over 230 percent of average at lower elevation sites and over 170 percent of average in the mountains. Inflow to the reservoir began to increase around the 5th of the month, but releases were greater than the inflow on most days and the reservoir level continued to fall. By May 25, the release to the river was 4,000 cfs and the spillway gates were opened on May 31. To complicate matters, Heart Mountain Canal had to be shut down for repairs on May 31 and canal diversions were discontinued until June 5. At the end of the month, the reservoir held 313,936 AF of water at elevation 5346.01 feet. May inflow to Buffalo Bill Reservoir was slightly above average, but with the snowpack on June 1 at 210 percent of average there was substantial runoff yet to come.

The June 1 forecast was increased to 1,110,000 AF, 168 percent of average and the release to the Shoshone River was increased to 5,000 cfs. The reservoir reached a low of 309,448 AF at elevation 5345.23 feet on June 4, before inflows began to exceed the release. The 5,000 cfs release to the river was maintained from June 3 through July 7 before further increases were required. Inflow continued to rise during June, with the peak daily runoff of 16,237 cfs occurring on June 30. Provisional data from the U S Geological Survey shows that the inflow on the North Fork of the Shoshone River peaked at 8,630 cfs on June 30 and the peak on the South Fork of 6,520 cfs also occurred on June 30. During the 18 day period from June 22 through July 9 the lake came up 35 feet.

On June 30 when the runoff was at its peak, the lake level rose 2.9 feet in 24 hours. The late and extended runoff carried through July and inflow in excess of 9,000 cfs was recorded every day from June 22 through July 15.

As the reservoir continued to rise, releases were increased as necessary to slow the rate of fill. Releases above 8,000 cfs were required from July 14 to the 20 with the maximum daily release of 8,330 cfs on July 15. Buffalo Bill also reached its maximum content for the year on July 15, with 629,807 AF of storage, which was 16,758 AF below the top of the conservation pool. The maximum elevation of 5391.42 feet was 2.08 feet below the level of the full reservoir. The inflow during July totaled 559,937 AF, which was highest volume for July for the period of record back to 1916. As inflows finally started to recede, the reservoir level began to slowly fall. Releases were reduced to the point where the spillway gates could be closed on July 25, with further reductions made by adjustments of the 4x5 gates.

August inflow was more than twice the 30 year average. The flow in the river reached approximately 1,500 cfs on August 4, where it was maintained until September 7 when the 4x5 gates were closed. At the end of August, storage in Buffalo Bill was 571,457 AF.

September inflow continued to be above average and releases in excess of demand were continued through the end of the water year when the reservoir held 482,678 AF of water at elevation 5372.04 feet. This was 109 percent of the 1993-2010 average for the enlarged reservoir.

The total inflow to Buffalo Bill during the April through July runoff period was 1,230,390 AF, which was 186 percent of average and the highest April-July runoff for the 1916-2011 period of record. The total water year inflow of 1,458,466 AF was 174 percent of average and also the highest water year inflow of record.

Total energy generated at all powerplants that directly receive water out of Buffalo Bill Reservoir totaled 128,457,000 kWh in 2011. Of this total amount, Heart Mountain Powerplant generated 16,080,000 kWh, Buffalo Bill Powerplant generated 80,029,000 kWh, Shoshone Powerplant generated 18,495,000 kWh and Spirit Mountain Powerplant generated 13,853,000 kWh. The powerplants used 652,744 AF of water to generate this amount of energy and 45 percent of the total water released from Buffalo Bill Reservoir during water year 2011 was used for generation. About 15 percent, or 214,763 AF of the total water released from Buffalo Bill Reservoir, was released to the Heart Mountain Canal for irrigation purposes.

Important Events in Water Year 2011

October 15, 2010: Irrigation diversions to the Heart Mountain Canal were discontinued for the 2010 irrigation season.

October 17, 2010: Releases to the Shoshone River were reduced to the winter release of 350 cfs.

March 29, 2011: Buffalo Bill Reservoir Public Information meeting was held in Powell to discuss water year 2010 operation and expected water year 2011 operation.

March 30, 2011: Began increasing releases from Buffalo Bill Reservoir in anticipation of above average spring snow melt runoff.

April 19, 2011: Irrigation releases to the Heart Mountain Canal were initiated for the 2011 irrigation season.

May 31, 2011 – July 25, 2011: Releases were made through the Buffalo Bill spillway to control the reservoir level.

July 15, 2011: Buffalo Bill Reservoir reached a maximum elevation for the water year of 5391.42 feet.

Additional hydrologic and statistical information pertaining to the operations of Buffalo Bill Reservoir during water year 2011 can be found in Table WYT8 and Figure WYG5.

Table WYT8:
Hydrologic Data for Water Year 2011
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	5372.44	485,526	OCT 01,2010
END OF YEAR	5372.04	482,678	SEP 30, 2011
ANNUAL LOW	5345.23	309,448	JUN 4, 2011
HISTORIC LOW*		19,080	JAN 31, 1941
ANNUAL HIGH	5391.42	629,807	JUL 15, 2011
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)	1,458,466	OCT 10-SEP 11	1,461,314	OCT 10-SEP 11
DAILY PEAK (cfs)	16,237	JUN 30, 2011	8,330	JUL 15, 2011
DAILY MINIMUM (cfs)	30	JAN 2, 2011	338	NOV 21, 2010
PEAK SPILLWAY FLOW (cfs)			5,064	JUL 14, 2011
TOTAL SPILLWAY FLOW (AF)			291,781	MAY31-JUL25,2011

*Daily peak and minimum are releases to the river

	INFLOW		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	16.6	64	44.5	126	457.6	109
NOVEMBER	19.0	89	21.0	117	455.6	108
DECEMBER	18.6	118	21.8	127	452.3	107
JANUARY	15.7	107	21.9	134	446.1	106
FEBRUARY	12.0	92	19.9	123	438.1	105
MARCH	17.7	93	22.5	109	433.3	105
APRIL	20.3	50	118.6	222	335.0	85
MAY	162.3	102	183.4	163	313.9	71
JUNE	487.9	162	329.7	184	472.1	83
JULY	559.9	349	411.8	238	620.2	109
AUGUST	96.7	215	145.5	131	571.5	113
SEPTEMBER	32.0	129	120.8	150	482.7	109
ANNUAL	1,458.5	174	1,461.3	175		

APRIL - JULY INFLOW (AF)	
ACTUAL	AVERAGE
1,230,390	660,900

* Average for inflow and outflow is the 1981-2010 period. Because of the enlargement of Buffalo Bill Reservoir in 1992, the period of record on which average content is based is 1993-2010.

Figure WYG5:
Buffalo Bill Reservoir

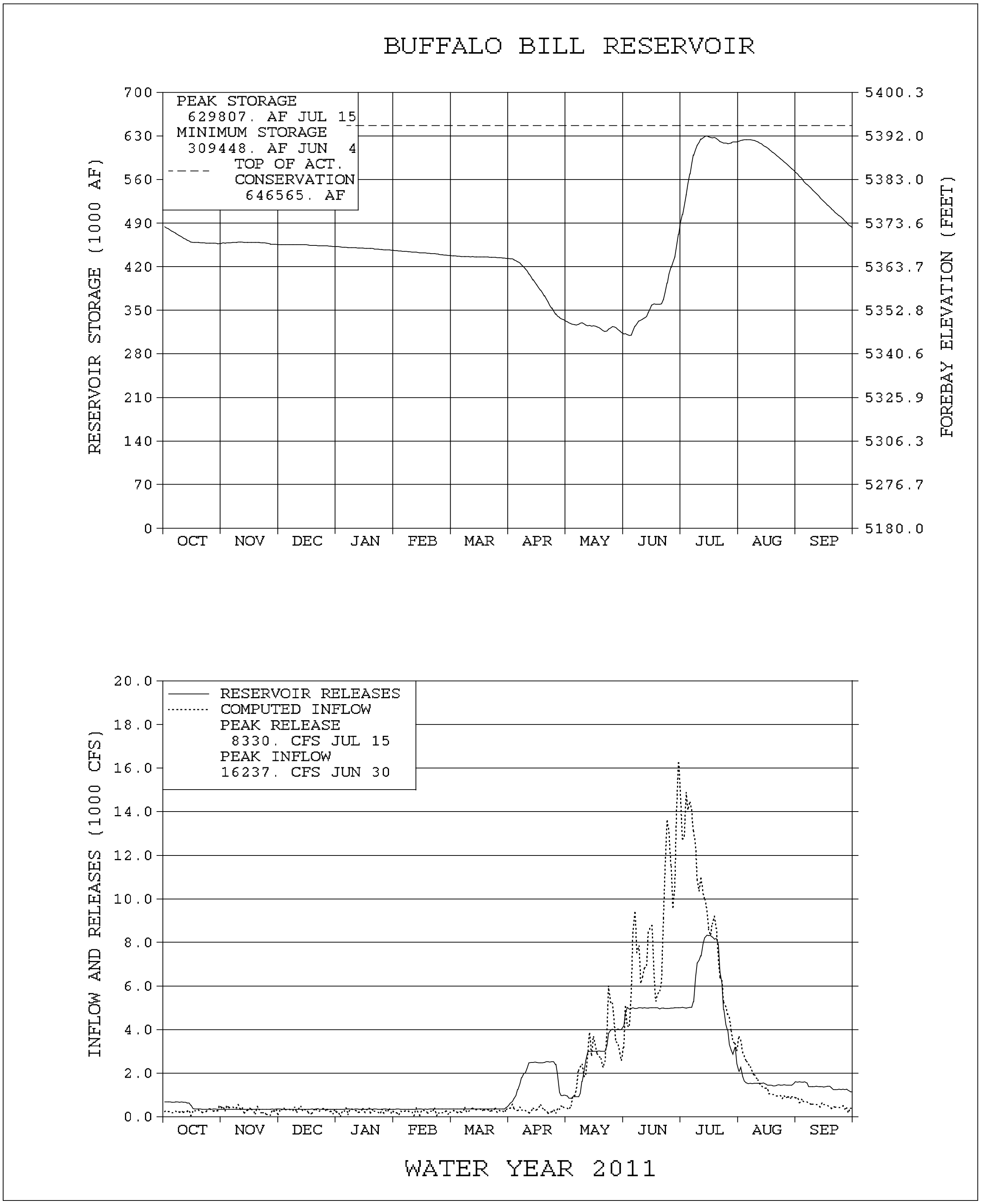


Table WYT9:
Water Year 2011 Actual Outages for Wyoming Powerplants

Facilities	Description of Work	Outage Dates
BOYSEN		
Unit 1	Annual Maintenance	01/10/11 - 01/31/11
Unit 1	Hi-Pot Test Bus #1	02/22/11 - 03/04/11
Unit 2	Annual Maintenance	11/01/10 - 12/13/10
Unit 2	Hi-Pot Test Bus #1	02/22/11 - 03/04/11
PILOT BUTTE		
Unit 1	Unit in "Mothballed" status	06/01/09 - 09/30/11
Unit 2	Unit in "Mothballed" status	06/01/09 - 09/30/11
BUFFALO BILL		
Buffalo Bill Powerplant		
Unit 1	Annual Maintenance	11/22/10 - 12/02/10
Unit 2	Annual Maintenance	12/13/10 - 12/30/10
Unit 2	Gate Limit Motor	01/05/11 - 01/11/11
Unit 2	Stator Testing – Bad Stator	01/19/11 - 06/13/11
Unit 3	Annual Maintenance	01/10/11 - 02/14/11
Unit 3	Bus #2 Differential	02/18/11 - 02/21/11
Shoshone Powerplant		
Unit 3	Annual Maintenance	02/14/11 - 02/28/11
Unit 3	Generator Overspeed – Wicket Gate Problem	07/20/11 - 08/02/11
Heart Mountain Powerplant		
Unit 1	Annual Maintenance	03/07/11 - 03/18/11
Spirit Mountain Powerplant		
Unit 1	Annual Maintenance	10/18/10 - 11/08/10

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

Bull Lake Reservoir

During the past several years, Midvale and Reclamation have entered into an annual agreement whereby Reclamation could store Boysen water in Bull Lake under any combination of four conditions set forth in the agreement. A similar agreement was approved for 2011. The Boysen water stored in Bull Lake allows Bull Lake to be maintained at a higher content and also provides a flow of 20 to 25 cfs in Bull Lake Creek below the dam as the Boysen water is released from Bull Lake through the winter months. On October 1, 2010, Bull Lake Reservoir held 65,846 AF of water. Of the 65,846 AF held in Bull Lake, 9,941 AF was Boysen water in Bull Lake. Inflow to Bull Lake was slightly greater than the release and the reservoir slowly rose through the winter. Inflow from snowmelt runoff began in mid-May and during the April-July period the inflow to Bull Lake was 134 percent of average. The reservoir reached a maximum elevation for the year of 5802.92 feet on August 3, which was 32.29 feet higher than the minimum elevation for the year of 5770.63 feet that occurred on May 18, 2011. At the end of water year 2011, the content of Bull Lake was 92,967 AF. At the beginning of water year 2012, there was 11,628 AF of Boysen storage water in Bull Lake. This water will be transferred back to Boysen during the winter months of water year 2012 to provide a winter flow in Bull Lake Creek.

Boysen Reservoir

Boysen Reservoir storage at the beginning of water year 2011 was 106 percent of average and 86 percent of capacity. Following the 2010 irrigation season, the release from Boysen Dam was set at approximately 800 cfs, where it remained through the winter months. At the request of the Wyoming Game and Fish Department, a flushing flow release was made beginning on April 5. Flushing flows are designed to simulate high runoff events that occurred in the river prior to flows being controlled by the dam. The rapidly increasing flows flush the fine sediment from the spawning gravels in the river, improving the spawning habitat for trout. The flushing flow began early on the morning of April 5 when releases were increased from 1,200 cfs to 3,000 cfs, with another increase to 5,000 cfs occurring 5 hours later. The 5,000 cfs release was maintained for 10 hours and then gradually reduced back to 1,200 cfs. During the flushing flow, approximately 5,200 AF of water was released above the 1,200 cfs release.

Buffalo Bill Reservoir

Following the 2010 irrigation season the release from Buffalo Bill Reservoir was set at approximately 350 cfs, based on winter release criteria contained in the Buffalo Bill Reservoir Enlargement Winter Release Operation Agreement. A winter release of 100 cfs, 150 cfs, 200 cfs, or 350 cfs will be provided below Buffalo Bill Powerplant based on the total inflow to Buffalo Bill Reservoir during the previous water year and the amount of storage in the reservoir and in the State account on September 30. A release of 100 cfs will be maintained in the river below the dam at all times.

Reclamation continues to support the Wyoming Game and Fish 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 the Wyoming Game and Fish 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. During the period from October 10, 2010, through June 29, 2011, the water surface elevation of Buffalo Bill Reservoir was below the top of the North Fork Dike (elevation 5370.00 feet). The minimum elevation of the pool behind the South Fork Dike of 5392.13 feet occurred on May 2, 2011, and the maximum elevation of 5394.12 feet occurred on October 24, 2010. At the maximum elevation, the pool behind the South Fork Dike covered 208 surface acres. On June 4, 2011, when the water surface elevation of Buffalo Bill Reservoir was at its low for the year of 5345.23 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 5392.68 feet. At the minimum reported elevation of Buffalo Bill Reservoir, 193 more acres of land would have been exposed without the ability to store water behind the South Fork Dike.

The number of stoplogs at the outlet control structure on the South Fork Dike has been set to maintain the static water level of the pond behind the dike at approximately 5392.00 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 2011, 7,932 AF of water was pumped from Diamond Creek Reservoir into Buffalo Bill Reservoir. Reservoir levels during all of water year 2011 were adequate for recreational activities on Buffalo Bill Reservoir.

WEATHER SUMMARY FOR NORTH AND SOUTH DAKOTA

October precipitation was very much below normal at Dickinson and Heart Butte Reservoirs, much below normal at Shadehill Reservoir, and below normal at Angostura, Belle Fourche, Deerfield, Jamestown, Keyhole, and Pactola Reservoirs.

November precipitation was very much below normal at Jamestown Reservoir, much below normal at Deerfield and Dickinson Reservoirs, below normal at Angostura, Belle Fourche, Pactola and Shadehill Reservoirs, normal at Heart Butte Reservoir and above normal at Keyhole Reservoir.

December precipitation was below normal at Belle Fourche, Deerfield, Dickinson, Keyhole, and Pactola Reservoirs, above normal at Angostura and Shadehill Reservoirs, much above normal at Jamestown Reservoir, and very much above normal at Heart Butte Reservoir.

January precipitation was much below normal at Jamestown Reservoir, above normal at Angostura, Belle Fourche, Deerfield, Dickinson, Keyhole, Pactola, and Shadehill Reservoirs, very much above normal at Heart Butte Reservoir.

February precipitation was very much below normal at Dickinson and Jamestown Reservoirs, normal at Deerfield Reservoir, above normal at Angostura, Belle Fourche, Keyhole, Pactola, and Shadehill Reservoirs and very much above normal at Heart Butte Reservoir.

March precipitation was below normal at Heart Butte and Shadehill Reservoirs, normal at Angostura, Belle Fourche, Dickinson, Jamestown, and Pactola Reservoirs, above normal at Angostura, Deerfield, and Keyhole Reservoirs.

April precipitation was below normal at Angostura, Belle Fourche, Deerfield, and Pactola Reservoirs, normal at Heart Butte and Keyhole Reservoirs, above normal at Dickinson and much above normal at Jamestown Reservoir.

May precipitation was above normal at Angostura, Belle Fourche, Deerfield, Keyhole, Pactola, and Shadehill Reservoirs, much above normal at Jamestown Reservoir, and very much above normal at Dickinson and Heart Butte Reservoirs.

June precipitation was below normal at Belle Fourche, Deerfield, Keyhole, and Pactola Reservoirs, normal at Angostura, Dickinson, and Shadehill Reservoirs, much above normal at Heart Butte Reservoir, and very much above normal at Jamestown Reservoir.

July precipitation was much below normal at Angostura Reservoir, below normal at Keyhole, Pactola, and Shadehill Reservoirs and above normal at Belle Fourche, Deerfield, Dickinson, Heart Butte, and Jamestown Reservoirs.

August precipitation was below normal at Angostura, Deerfield, and Keyhole Reservoirs, normal at Belle Fourche Reservoir, above normal at Pactola and Shadehill Reservoirs, much above normal at Dickinson Reservoir, and very much above normal at Heart Butte and Jamestown Reservoirs.

September precipitation was much below normal at Deerfield, Dickinson, Jamestown, Pactola, and Shadehill Reservoirs, below normal at Angostura, Belle Fourche, and Keyhole Reservoirs and much above normal at Heart Butte Reservoir.

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

Table DKT1:
Total Annual Precipitation for Reclamation Reservoirs in North Dakota, South Dakota, and Northeastern Wyoming in Inches

Reservoir	2011 Total	Average Total	Percent
Angostura 1/	66.32	66.10	100
Belle Fourche 2/	57.91	55.92	104
Deerfield	15.87	20.87	76
Keyhole 3/	39.81	35.92	111
Pactola	22.64	21.10	107
Shadehill 4/	36.27	32.61	111
Dickinson	17.84	16.35	109
Heart Butte	24.03	15.75	153
Jamestown	21.98	18.49	119

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

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

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

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, 2010, and September 30, 2011, at reservoirs in North and South Dakota and eastern Wyoming.

Table DKT2:
Comparison of End-of-Water-Year Storage Content for Reservoirs in North Dakota, South Dakota, and Northeastern Wyoming in Acre-Feet

Reservoir	Storage September 30, 2010	Storage September 30, 2011	Change in Storage
Angostura	97,886	95,074	-2,812
Belle Fourche	102,248	114,610	12,362
Deerfield	14,734	15,131	397
Keyhole	109,315	166,274	56,959
Pactola	53,878	53,254	-624
Shadehill	105,860	120,373	14,513
Dickinson	7,769	7,983	214
Heart Butte	62,831	60,156	-2,675
Jamestown	29,319	92,246	62,927

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

Several Bureau of Reclamation reservoirs in northeastern Wyoming, South Dakota, and North Dakota provided flood relief during water year 2011. They are: Heart Butte Reservoir on the Heart River near Glen Ullin, North Dakota; Shadehill Reservoir on the Grand River near Lemmon, South Dakota; Angostura Reservoir on the Cheyenne River near Hot Springs, South Dakota; Pactola Reservoir on Rapid Creek near Rapid City, South Dakota; Keyhole Reservoir on the Belle Fourche River near Moorcroft, Wyoming; and Jamestown Reservoir 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 below table lists the distributions of flood damages prevented for each reservoir.

Flood Damage Prevented in Water Year 2011
Accumulated Total 1950-2011

	Local	Main-Stem	2011 Total	Previous Accumulations	1950-2011 Accum Totals
Heart Butte	$399,800	$0	$399,800	$15,163,900	$15,563,700
Shadehill	$795,200	$0	$795,200	$11,206,100	$12,001,300
Angostura	$0	$0	$0	$22,800	$22,800
Pactola	$114,900	$0	$114,900	$3,432,200	$3,547,100
Keyhole	$175,400	$0	$175,400	$4,155,600	$4,155,400
Jamestown	$56,899,500	$0	$56,899,500	$146,706,200	$203,605,700
Total	**$58,384,800**	**$0**	**$58,384,800**	**$180,686,800**	**$239,071,600**

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

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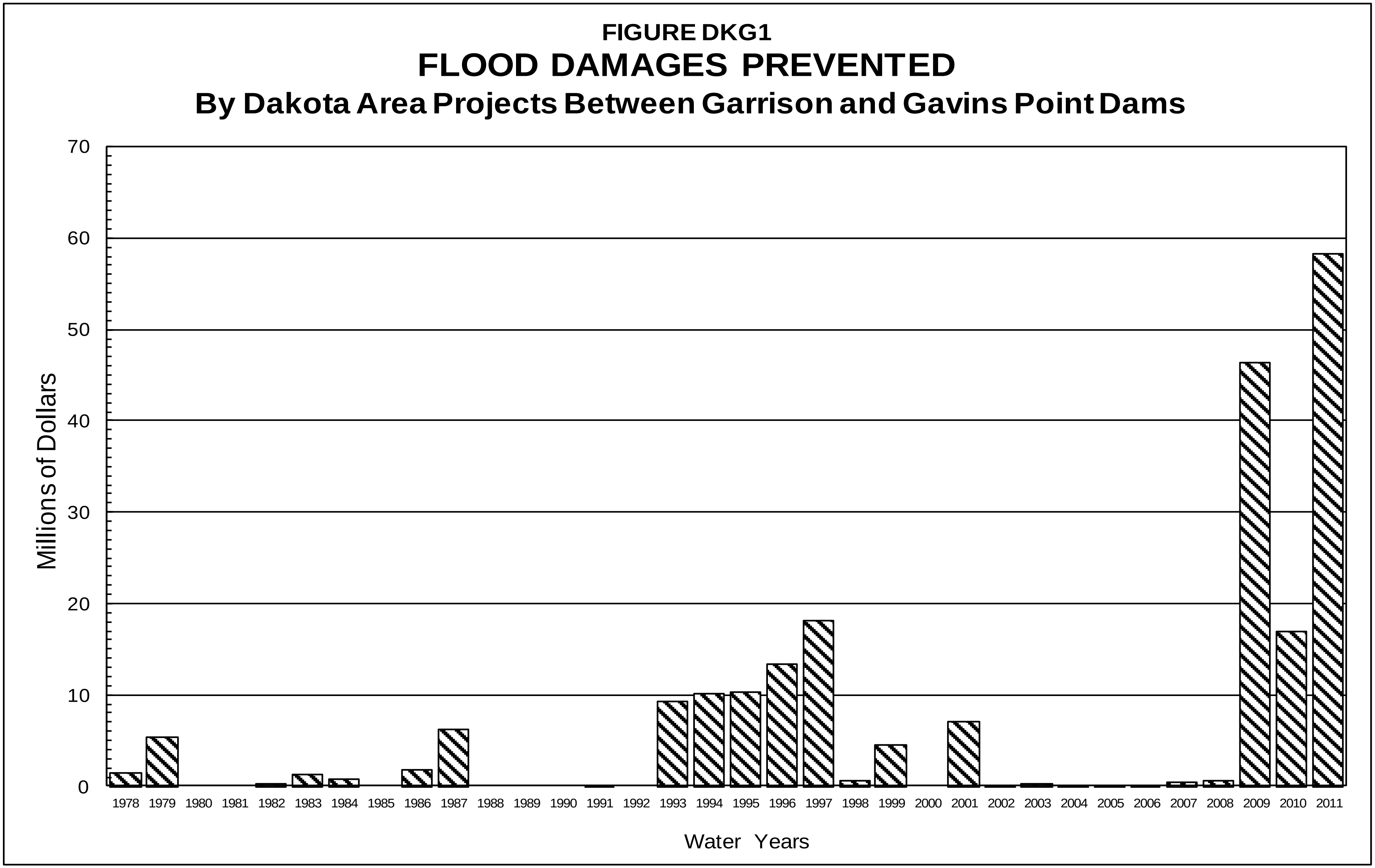


FIGURE DKG1
FLOOD DAMAGES PREVENTED
By Dakota Area Projects Between Garrison and Gavins Point Dams
Millions of Dollars
0
10
20
30
40
50
60
70
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Water Years

UNIT OPERATIONAL SUMMARIES FOR WATER YEAR 2011

DICKINSON RESERVOIR

Background

Dickinson Dam and 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. This results in a total storage capacity of 8,612 acre-feet at the top of conservation 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 Dickinson Parks and Recreation District.

Water Year 2011 Operations Summary

Flood operations occurred in March through August 2011 at Dickinson Dam. Inflows for water year 2011 totaled 65,844 acre-feet (345 percent of average). Peak inflows occurred in April, totaling 24,694 acre-feet (569 percent of average) which were the fourth highest April inflows of record. Inflows for water year 2011 were the second highest of record.

The reservoir peaked at elevation 2420.81 on April 3 which is the fifth highest elevation in the reservoir's 60 year history.

Dickinson Reservoir started water year 2011 at elevation 2419.27 and storage of 7,769 acre-feet, which is 0.73 feet, and 843 acre-feet below the top of the conservation pool (elevation 2420.00 and storage 8,612 ac-ft). Dickinson Reservoir peaked at elevation 2420.81 on April 3 with 9,615 acre-feet of storage. The minimum reservoir elevation was 2418.75 and storage of 7,204 acre-feet occurred on March 19, 2011. The reservoir elevation on September 30, 2011, was 2419.46 with storage of 7,983 acre-feet, which is 0.54 feet and 629 acre-feet below the top of conservation pool.

The maximum instantaneous discharge of 3,316 cfs occurred on April 3. Reservoir net inflows for water year 2011 were the second highest on record for the dam and totaled 65,844 acre-feet, 345 percent of average. The maximum 24 hour computed inflow occurred on April 3 with 2,924 cfs. Precipitation for the water year totaled 17.84 inches, which is 109 percent of average.

120 acre-feet of water was specifically released for irrigation purposes.

An Emergency Management/Security orientation was conducted on February 2, 2011.

On March 21, Dickinson Reservoir went into Internal Alert with a reservoir elevation over 2420.00. On March 22, Dickinson Reservoir went into Response Level 1 when the reservoir elevation is over 2420.50. Dickinson Reservoir was taken out of Response Level 1 on June 16 and placed back into Internal Alert. Dickinson Reservoir remained at Internal Alert until August 7 when it went into Response Level 1 and remained there until August 9 when it was put back into Internal Alert. The reservoir remained at Internal Alert until August 26 when the reservoir dropped below elevation 2420.00 and was put into normal operating conditions.

A Comprehensive Facility Review was conducted on July 21, 2011, by personnel from the Technical Service Center, Great Plains Regional Office and the Dakotas Area Office.

Monthly Statistics for Water Year 2011

Record and near record monthly inflows in 60 years of record keeping were recorded in the following months: October had its eighth highest inflow, December had its eighth highest inflow, January had its tenth highest inflow, April had its fourth highest inflow, May had its second highest inflow, and August had its fifth highest inflow.

Record or near record monthly end of month content in 60 years of record keeping were recorded in the following months: October and November had its eighth highest storage, January had its seventh highest storage, February and March had its ninth highest storage, April had its tenth highest storage, May had its ninth highest storage, August had its seventh highest storage, and September had its seventh highest storage.

Additional statistical information on Dickinson Reservoir and its operations during water year 2011 can be found on Table DKT3 and Figure DKG2.

Table DKT3:
Hydrologic Data for Water Year 2011
Dickinson Reservoir

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE	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			

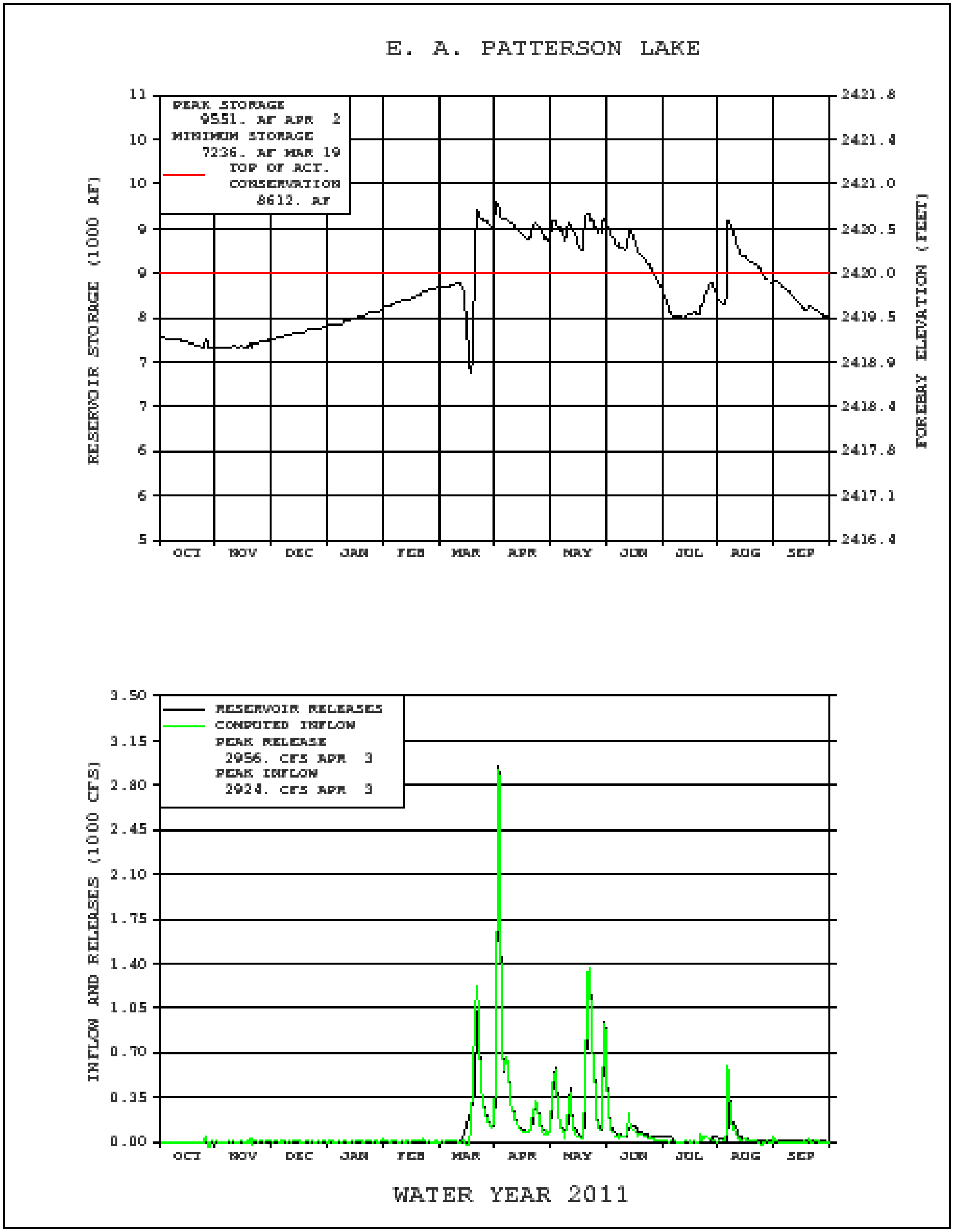
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2,419.27	7,769	OCT 01, 2010
END OF YEAR	2,419.46	7,983	SEP 30, 2011
ANNUAL LOW	2,418.75	7,204	MAR 19, 2011
ANNUAL HIGH	2,420.81	9,615	APR 03, 2011
HISTORIC HIGH	2,422.19	***9,348	MAR 21, 1997

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	65,844	OCT 10-SEP 11	65,630	OCT 10-SEP 11
DAILY PEAK (CFS)*	2,924	APR 03, 2011	3,316	APR 03,2011
DAILY MINIMUM (CFS)**	0	**	0	**

MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	-166	-63	0	NA	7,603	141
NOVEMBER	111	80	0	NA	7,714	144
DECEMBER	178	152	0	NA	7,892	148
JANUARY	251	143	0	NA	8,143	152
FEBRUARY	256	25	0	NA	8,399	147
MARCH	11,901	167	11,065	183	9,235	135
APRIL	24,694	569	24,892	603	9,037	129
MAY	21,120	965	20,847	904	9,310	133
JUNE	4,272	177	5,160	214	8,422	120
JULY	546	59	698	49	8,270	127
AUGUST	2,814	1,031	2,591	336	8,493	142
SEPTEMBER	-133	-233	377	103	7,983	141
ANNUAL	65,844	345	65,630	346		
APRIL-JULY	50,632	514				

* 24 hour daily inflow and 15 minute instantaneous discharge
** 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 at Elevation 2421.08 on June 9, 1982)

Figure DKG2:
Dickinson Reservoir



HEART BUTTE RESERVOIR

Background

Heart Butte Dam and Lake Tschida (Heart Butte Reservoir) is located on the Heart River near Glen Ullin, North Dakota. The reservoir has a dead storage capacity of 5,227 acre-feet, an active conservation capacity of 61,915 acre-feet (for a total storage capacity of 67,142 acre-feet at the top of active conservation 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. Heart Butte Reservoir is primarily used for flood control and the authorized irrigation of up to 13,100 acres of which about 7,320 acres are currently being irrigated.

Water Year 2011 Operations Summary

Flood operations occurred in March through August 2011 at Heart Butte Reservoir. Inflows for water year 2011 totaled 279,254 acre-feet (328 percent of average). Peak inflows occurred in April, totaling 116,970 acre-feet (488 percent of average) which were the fourth highest April inflows of record. Inflows for water year 2011 were the second highest of record.

The reservoir peaked at elevation 2073.08 on April 10 which is the 12th highest elevation in the reservoir's 62 year history.

Heart Butte Reservoir started water year 2011 at elevation 2063.17 and storage of 62,831 acre-feet, which is 1.33 feet, and 4,311 acre-feet below the top of conservation pool (elevation 2064.50 and storage 67,142 acre-feet). Heart Butte Reservoir peaked at elevation 2073.08 on April 10 with 98,784 acre-feet of storage. The minimum reservoir elevation was 2062.30 and storage of 60,094 acre-feet occurred on September 30, 2011. The maximum instantaneous discharge of 3,304 cfs occurred on April 10. Reservoir net inflows for water year 2011 were the second highest on record for the dam and totaled 279,254 acre-feet, 328 percent of average. The maximum 24 hour computed inflow occurred on April 3 with 5,760 cfs. Precipitation for the water year totaled 24.03 inches, which is 153 percent of average.

No water was specifically released for irrigation purposes.

An Emergency Management/Security orientation was conducted on January 26, 2011. Also a tabletop exercise was held on July 27, 2011.

Heart Butte Reservoir went into Internal Alert with a reservoir elevation over 2064.50 with releases up to 700 cfs on March 20. On March 23, the reservoir went into Response Level 1, with a reservoir elevation over 2067.00 or releases over 1,000 cfs. On March 30, the reservoir went into Internal Alert. On April 2, the reservoir went to Response Level 1. On April 27, the reservoir went into Internal Alert. Then on May 3, the reservoir went back to normal operating conditions. Then on May 5, the reservoir went into Internal Alert. On May 17, the reservoir went back to normal operating conditions.

Then on May 21, the reservoir went into Internal Alert. On May 22, the reservoir went to Response Level 1. On June 6, the reservoir went to Internal Alert. On June 13, the reservoir went to Response Level 1. On June 16, the reservoir went to Internal Alert. Then on August 21, the reservoir was put back into normal operating conditions.

A Comprehensive Facility Review was conducted on July 20, 2011, by personnel from the Technical Service Center, Great Plains Regional Office and the Dakotas Area Office.

Monthly Statistics for Water Year 2011

Record and near record monthly inflows in 62 years of record keeping were recorded in the following months: December and January had its fifth highest inflow, April had its fourth highest inflow, May had its second highest inflow June had its third highest inflow, August had its fourth highest inflow and September has its seventh highest inflow.

Record and near record monthly end of month content in 62 years of record keeping were recorded in the following months: January had its 11th highest storage, February and May had its 15th highest storage.

Additional statistical information on Heart Butte Reservoir and its operations during water year 2011 can be found on Table DKT4 and Figure DKG3.

Table DKT4:
Hydrologic Data for Water Year 2011
Heart Butte Reservoir

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

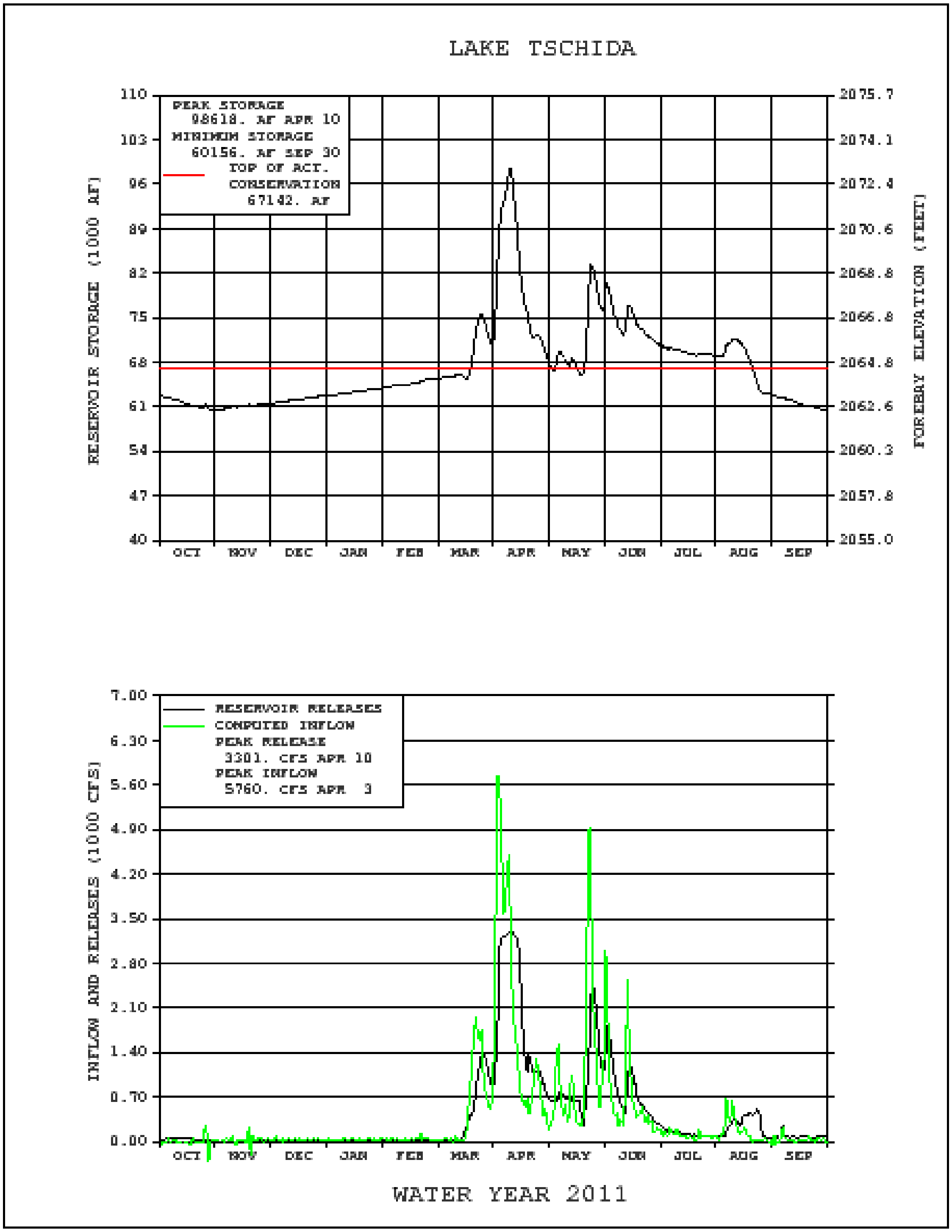
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2,063.17	62,831	OCT 01, 2010
END OF YEAR	2,062.32	60,156	SEP 30, 2011
ANNUAL LOW	2,062.30	60,064	SEP 30, 2011
ANNUAL HIGH	2,073.08	98,784	APR 10, 2011
HISTORIC HIGH	2,086.23	173,203	APR 09, 1952

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	279,254	OCT 10-SEP 11	281,929	OCT 10-SEP 11
DAILY PEAK (CFS)	5,760	APR 03, 2011	3,304	APR 10, 2011
DAILY MINIMUM (CFS)	0	*	0	*

MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	-142	-14	2,222	125	60,467	104
NOVEMBER	1,272	110	238	17	61,501	106
DECEMBER	1,693	210	522	42	62,672	109
JANUARY	1,836	210	525	48	63,983	112
FEBRUARY	1,931	56	476	26	65,438	111
MARCH	32,002	109	26,787	147	70,658	101
APRIL	116,970	488	118,754	497	68,869	98
MAY	66,235	709	58,811	551	76,293	111
JUNE	40,976	425	46,480	545	70,789	101
JULY	5,931	139	7,617	96	69,103	104
AUGUST	8,936	880	15,336	303	62,703	101
SEPTEMBER	1,613	628	4,160	164	60,156	100
ANNUAL	279,254	328	281,929	335		
APRIL-JULY	230,112	487				

* Frequently observed during fall and winter months

Figure DKG3:
Heart Butte Reservoir



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 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.

Water Year 2011 Operations Summary

Flood operations occurred in April through November 2011 at Jamestown Dam. Inflows for water year 2011 totaled 479,071acre-feet (964 percent of average). Peak inflows occurred in April, totaling 203,330 acre-feet (884 percent of average) which were the second highest April inflows of record. Inflows for water year 2011 were the highest of record.

The reservoir peaked at elevation 1451.87 on April 30 which is the second highest elevation in the reservoir's 58 year history.

Jamestown Reservoir started water year 2011 at elevation 1430.00 and storage of 29,319 acre-feet, which is 2.00 feet, and 3,962 acre-feet above the top of the conservation pool (elevation 1428.00 and storage 25,357 ac-ft). Jamestown Reservoir peaked at elevation 1451.87 on April 30 with 193,728 acre-feet of storage. The minimum reservoir elevation was 1428.16 feet and storage of 25,604 acre-feet occurred on March 8, 2011. The reservoir elevation on September 30, 2011 was 1442.43 with storage of 92,246 acre-feet, which is 14.43 feet and 66,889 acre-feet above the top of active conservation pool.

The maximum instantaneous discharge of 1,606 cfs occurred on April 30. Reservoir net inflows for water year 2011 were the highest on record for the dam and totaled 479,071 acre-feet, 964 percent of average. The maximum 24 hour computed inflow occurred on April 15 with 14,283 cfs. Precipitation for the water year totaled 21.98 inches at 119 percent of average.

No water was specifically released for irrigation purposes.

An Emergency Management/Security Orientation was conducted on January 27, 2011. A combined table top exercise with the Corps of Engineers for Pipestem and Jamestown Dams was held on February 23, 2011. On April 7, Jamestown Reservoir went into Internal Alert with a reservoir elevation between 1431.00 and 1439.99 or with releases between 450 cfs and 749 cfs. On April 13, Jamestown Reservoir went into Response Level 1 with the reservoir elevation over 1440.00 or releases over 750 cfs. On October 25, Jamestown Reservoir went to Internal Alert with a reservoir elevation under 1440.00. On November 15, Jamestown Reservoir dropped below elevation 1431.00 and was put into normal operating conditions.

A Comprehensive Facility Review was conducted on July 19, 2011, by personnel from the Technical Service Center, Great Plains Regional Office and the Dakotas Area Office.

Monthly Statistics for Water Year 2011

Record and near record monthly inflows in 58 years of record keeping were recorded in the following months: December had its eighth highest inflow, April had its second highest inflow, May, June, July, August, and September had its highest ever inflows.

Record and near record monthly end of month content in 58 years of record keeping were recorded in the following months: April and May had its second highest storage, June, July, August, and September had its highest ever storages.

Additional statistical information on Jamestown Reservoir and its operations during water year 2011 can be found on Table DKT5 and Figure DKG4.

Table DKT5:
Hydrologic Data for Water Year 2011
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

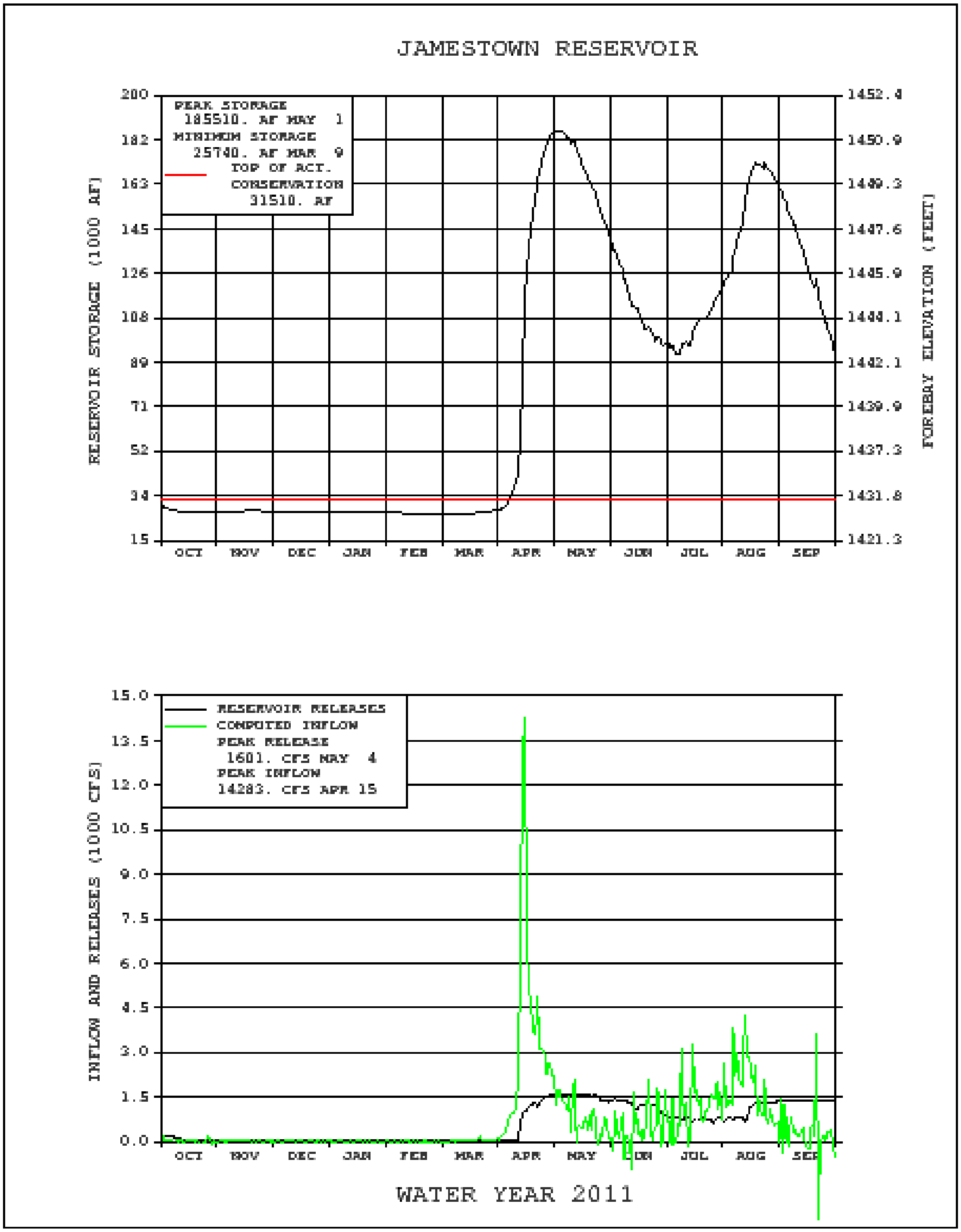
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	1,430.00	29,319	OCT 01, 2010
END OF YEAR	1,442.43	92,246	SEP 30, 2011
ANNUAL LOW	1,428.16	25,604	MAR 08, 2011
ANNUAL HIGH	1,451.87	193,728	APR 30, 2011
HISTORIC HIGH	1,454.10	222,318	APR 26, 2009

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	479,071	OCT 10-SEP 11	416,144	OCT 10-SEP 11
DAILY PEAK (CFS)	14,283	APR 15, 2011	1,606	APR 30, 2011
DAILY MINIMUM (CFS)	0	*	11	MAR 31, 2011

MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	1,447	145	4,221	190	26,545	106
NOVEMBER	1,188	163	747	74	26,986	109
DECEMBER	752	233	772	262	26,967	108
JANUARY	346	256	768	705	26,545	107
FEBRUARY	78	34	691	712	25,932	104
MARCH	2,268	33	763	93	27,437	88
APRIL	203,330	884	46,484	515	184,284	408
MAY	52,357	714	94,540	736	142,101	359
JUNE	27,212	875	72,330	828	96,983	285
JULY	68,710	2,216	46,974	810	118,719	379
AUGUST	106,265	4,073	64,667	1,481	160,317	543
SEPTEMBER	15,115	1,333	83,187	2,184	92,246	343
ANNUAL	479,071	964	416,144	847		
APRIL-JULY	351,609	962				

* Frequently observed during fall and winter months

Figure DKG4:
Jamestown Reservoir



DEERFIELD RESERVOIR

Background

Deerfield Reservoir is located on Castle Creek, a tributary of Rapid Creek above Rapid City, SD. 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 majorities 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 1995-96 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 modified the outlet works of Deerfield Dam by installing jet flow gates to allow greater minimum winter releases than the 6 inch bypass is capable of providing.

Water Year 2011 Operations Summary

Deerfield Reservoir started water year 2011 at elevation 5905.77 feet and storage of 14,734 acre-feet, which is 2.23 feet and 921 acre-feet below the top of the conservation pool. Inflows for water year 2011 totaled 17,603 acre-feet (179 percent of the average). The peak reservoir elevation was 5908.73 feet, storage of 15,976 acre-feet, and occurred on June 2, 2011. The minimum elevation was 5897.71 feet, storage of 14,718 acre-feet, and occurred on Oct 7, 2011. Water year 2011 ended at elevation 5906.73 feet and storage of 15,131 acre-feet, which is 1.27 feet and 524 acre-feet below the top of the conservation pool. Deerfield ended water year 2011 at the fourth highest end of September elevation and the fifth highest inflows for the period of record of the reservoir.

Rapid Valley Water Conservancy District did not order any water from Deerfield for the 2011 irrigation season.

An Emergency Management Orientation exercise was held February 17, 2011. Deerfield Reservoir entered Internal Alert on May 21 with a reservoir level of 5908.01 ft. Deerfield Reservoir entered Response Level 1 when releases were brought to 90 cfs between the dates of May 22 and June 10. Maximum inflows occurred on May 30 with inflows of 129.79 cfs. Deerfield Reservoir left Internal Alert on June 13.

The Annual Facility Review was done on September 15, 2011, by personnel from the Rapid City Field Office.

Monthly Statistics for Water Year 2011

October end-of-month (EOM) elevation at Deerfield Reservoir was much above average. October inflow was above average. Release is 12 cfs. Deerfield finished the month 2.1 feet from full.

November EOM elevation at Deerfield Reservoir was much above average. November inflow was below average. Release is 12 cfs. Deerfield finished the month 2.2 feet from full.

December EOM elevation at Deerfield Reservoir was above average. December inflow was much above average. Release is 12 cfs. Deerfield finished the month 2.0 feet from full.

January EOM elevation at Deerfield Reservoir was above average. January inflow was much above average. Release is 12 cfs. Deerfield finished the month 1.9 feet from full.

February EOM elevation at Deerfield Reservoir was below average. February inflow was above average. Emergency Management Orientation exercise was done on February 17. Release is 12 cfs. Deerfield finished the month 1.8 feet from full.

March EOM elevation at Deerfield Reservoir was above average. March inflow was above average. Release is 24 cfs. Deerfield finished the month 1.8 feet from full.

April EOM elevation at Deerfield Reservoir was above average. April inflow was much above average. Release is 24 cfs. Deerfield finished the month 1.3 feet from full.

May EOM elevation and inflows at Deerfield Reservoir were the highest in 58 years of record. Deerfield Reservoir annual site inspection was done on May 5. Internal Alert declared on May 21 when elevation reached 5908.01. Deerfield Reservoir entered Response Level 1 when releases were brought to 90 cfs May 22. Deerfield finished the month 0.7 feet into the flood pool.

June EOM elevation at Deerfield Reservoir was above average. June inflows were second highest in 58 years of record. Maximum reservoir elevation occurred June 2. Deerfield Reservoir left response level 1 June 10. Deerfield Reservoir left internal alert June 13. Internal Alert canceled on June 2 when elevation dropped below 5908.0. Release at 35 cfs. Deerfield finished the month 0.4 feet from full.

July EOM elevation at Deerfield Reservoir was above average. July inflows were fifth highest in 58 years of record. Release at 25 cfs. Deerfield finished the month 0.9 feet from full.

August EOM elevation at Deerfield Reservoir was above average. August inflow was above average. Release at 20 cfs. Deerfield finished the month 1.9 feet from full.

September EOM elevation at Deerfield Reservoir was sixth highest in 58 years of record. September inflow was the fourth highest in 58 years of record. Release at 17 cfs. Deerfield finished the month 2.2 feet from full. Inflows for water year 2011 were the fifth highest of record.

Additional statistical information on Deerfield Reservoir and its operations during water year 2011 can be found on Table DKT6 and Figure DKG5.

Table DKT6:
Hydrologic Data for Water Year 2011
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	15,654	15,503
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL			

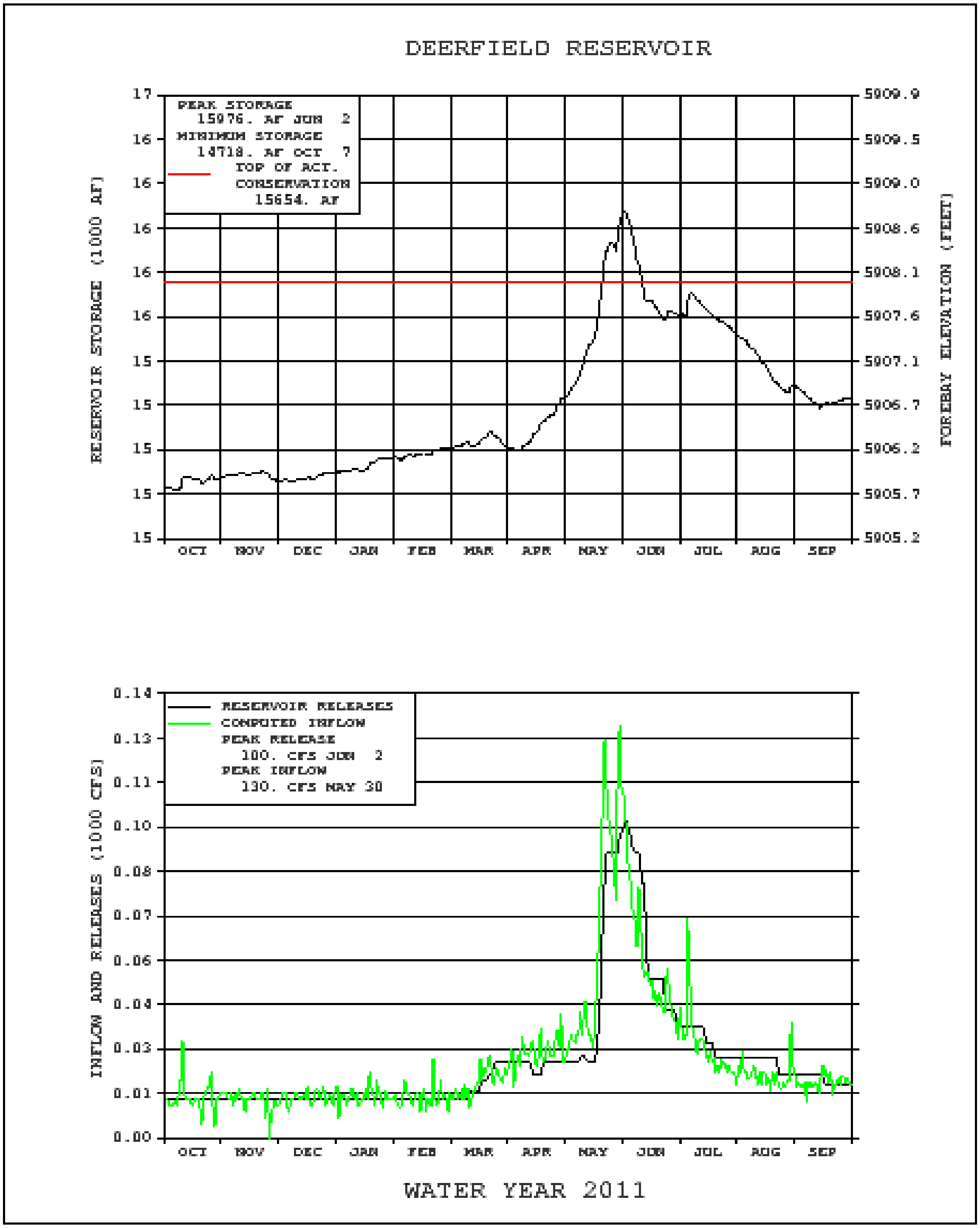
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	5,905.77	14,734	OCT 01, 2010
END OF YEAR	5,906.73	15,131	SEP 30, 2011
ANNUAL LOW	5,897.71	14,328	OCT 7, 2010
ANNUAL HIGH	5,908.73	15,771	JUN 2, 2011
HISTORIC HIGH	5,909.05	16,157	FEB 25, 1985

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	17,603	OCT'10 - SEP'11	17,206	OCT'10 - SEP'11
DAILY PEAK (CFS)	130	MAY 30, 2011	99.85	JUN 2, 2011 MAR
DAILY MINIMUM (CFS)	0	NOV 25, 2010	11.88	1, 2011

MONTH	INFLOW		OUTFLOW		EOM CONTENT**	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	778	121	737	99	14,775	119
NOVEMBER	694	119	714	200	14,755	117
DECEMBER	791	129	738	234	14,808	114
JANUARY	796	131	738	235	14,866	112
FEBRUARY	703	124	666	207	14,903	110
MARCH	1,056	123	1048	179	14,911	108
APRIL	1,604	135	1380	134	15,135	109
MAY	3,786	272	2,975	227	15,946	114
JUNE	3,371	274	3,813	302	15,504	111
JULY	1,767	206	1,856	166	15,415	113
AUGUST	1,216	180	1,442	119	14,189	108
SEPTEMBER	1,040	172	1,098	94	15,131	120
ANNUAL	17,603	180	13,823	143		
APRIL-JULY	8,793	192				

* Frequently observed during fall and winter months
** EOM Content – End of Month Content

Figure DKG5:
Deerfield Reservoir



PACTOLA 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 Hisega Meadows Water Incorporated 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.

A new long term storage contract was signed on July 31, 2007, between Reclamation and the city of Rapid City. The contract provides storage space of 49,000 acre-feet for the city and 6,000 acre-feet was retained by Reclamation.

Water Year 2011 Operations Summary

Pactola Reservoir started water year 2011 at elevation 4577.73 feet and storage of 53,878 acre-feet, which is 2.47 feet and 2,094 acre-feet below the top of the conservation pool. Inflows for water year 2011 totaled 62,019 acre-feet (175 percent of average). The peak reservoir elevation was 4584.87 feet, storage of 60,080 acre-feet, and occurred on June 3, 2011. The minimum elevation was 4576.98 feet, storage of 53,254 acre-feet, and occurred on September 30, 2011. Water year 2011 ended at elevation 4576.98 feet and storage of 53,254 acre-feet, which is 3.22 feet and 2,718 acre-feet below the top of the conservation pool. Inflows to Pactola Reservoir for water year 2011 were the fifth highest for the period of record of the dam.

The city of Rapid City did not order any water from city storage at Pactola. The city's needs were met with conservation releases to control reservoir storage and natural flow releases required to meet prior rights in Rapid Creek during the summer of 2011.

The operation of Pactola Reservoir provided some local flood relief during water year 2011. 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 were inundated at 350 to 400 cfs. Spring releases from Pactola Dam peaked at 415 cfs on May 30, 2011.

An Emergency Management Orientation exercise was held on February 17, 2011. Pactola entered Internal Alert May 19, 2011, with a reservoir level of 4580.20 and a controlled release of 125 cfs. On May 24, 2011, inflows peaked at 592.41 cfs. The peak release from Pactola was 400 cfs occurring from May 27, 2011, through June 13, 2011. Pactola left Internal Alert August 18, 2011, with a reservoir elevation of 4580.16 and a controlled release of approximately 130 cfs. The Corps of Engineers (COE) directed Reclamation under Flood Control Storage Use at USBR Section 7 Projects to use available flood control storage space at Pactola due to the flooding on the Missouri River. The operation at Pactola from June 10, 2011, to August 1, 2011, (originally to be September 1, 2011) was that Pactola was allowed a release of 100 cfs from June 20, 2011, to September 1, 2011, (we were allowed to increase our release on August 1 due to improvements in the situation at Lake Oahe). The 100 cfs was allowed to limit the rise into the flood pool. We were very fortunate to not receive any large rains during this time as Pactola's rise into the flood pool during this time reached elevation 4583.7 (3.5 feet into the flood pool). Pactola's elevation peaked at 4584.9 (4.7 feet into the flood pool) on June 3, 2011, with a release of 400 cfs.

The Annual Facility Review was done on September 8, 2011, by personnel from the Rapid City Field Office.

Monthly Statistics for Water Year 2011

October EOM elevation at Pactola Reservoir was above average. October inflow was above average. Release is 37 cfs. Pactola ended the month 2.1 feet from full.

November EOM elevation at Pactola Reservoir was above average. November inflow was much above average. Release is 37 cfs. Pactola ended the month 2.4 feet from full.

December EOM elevation at Pactola Reservoir was above average. December inflow was much above average. Release is 37 cfs. Pactola ended the month 2.6 feet from full.

January EOM elevation at Pactola Reservoir was above average. January inflow was much above average. Release is 37 cfs. Pactola ended the month 2.5 feet from full.

February EOM elevation at Pactola Reservoir was above average. February inflow was above average. Emergency Management Tabletop exercise was done on February 25. Release is 37 cfs. Pactola ended the month 2.5 feet from full.

March EOM elevation at Pactola Reservoir was above average. March inflow was much above average. Release is 77 cfs. Pactola ended the month 2.4 feet from full.

April EOM elevation at Pactola Reservoir was above average. April inflow was above average. Release is 68 cfs. Pactola ended the month 1.4 feet into the flood pool.

May EOM elevation at Pactola Reservoir was second highest and inflow was fifth highest in 54 years of record. Internal Alert declared on May 19 when the fore bay reached 4580.2. The reservoir inflows peaked at 592.41 cfs. Release is 414 cfs. Pactola ended the month 4.2 feet into the flood pool.

June EOM elevation at Pactola Reservoir was above average. June inflow was much above average. Internal alert canceled on June 17 when elevation dropped below 4580.2. Pactola entered Internal Alert once more June 23 as the elevation was raised back into the flood pool. Release is 101 cfs. Pactola ended the month 2.5 feet from full.

July EOM elevation at Pactola Reservoir was highest in 54 years of record. July inflows were much above average. Release is 106 cfs. COE restricted Pactola releases to 100 cfs. Pactola remained in Internal Alert through July. Pactola ended the month 2.7 feet from full.

August EOM elevation and inflow at Pactola Reservoir were much above average. Release is 105 cfs. Pactola left Internal Alert August 18 with a reservoir elevation 4580.16. Pactola ended the month 1.6 feet from full.

September EOM elevation and inflows at Pactola Reservoir were above average. Release is 59 cfs. Pactola ended the month 3.2 feet from full. Water year 2011 inflows were the fifth highest of record.

Additional statistical information on Pactola Reservoir and its operations during water year 2011 can be found on Table DKT7 and Figure DKG6

.

Table DKT7:
Hydrologic Data for Water Year 2011
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

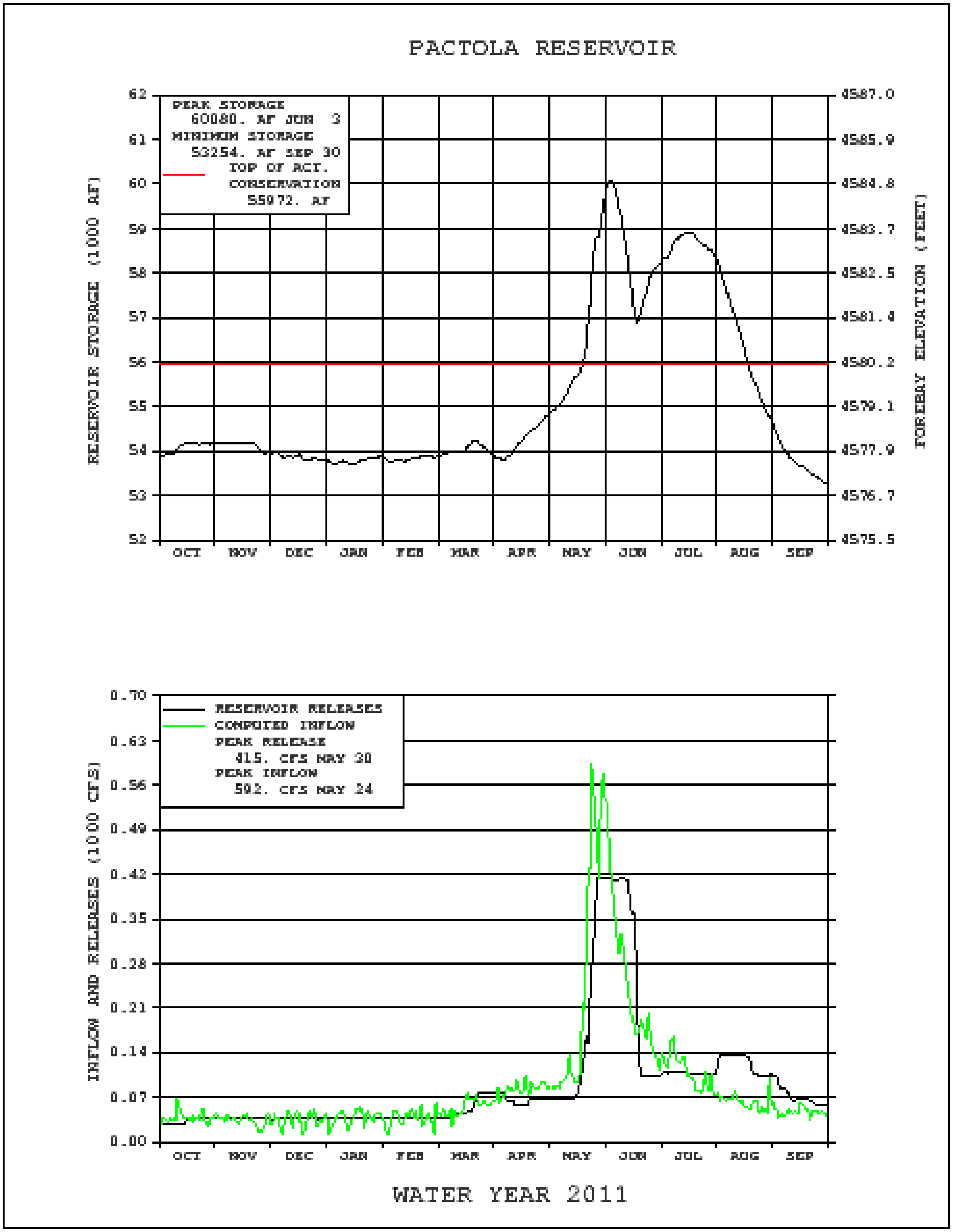
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4,577.73	53,878	OCT 01, 2010
END OF YEAR	4,576.98	53,254	SEP 30, 2011
ANNUAL LOW	4,576.98	53,254	SEP 30, 2011
ANNUAL HIGH	4,582.66	60,080	JUN 3, 2011
HISTORIC HIGH	4,585.87	61,105	MAY 19, 1965

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	56,808	OCT 09-SEP 10	57,581	OCT 09-SEP 10
DAILY PEAK (CFS)	379	MAY 24, 2010	302	JUN 14, 2010
DAILY MINIMUM (CFS)	8	DEC 03, 2009	20	SEP 21, 2010

MONTH	INFLOW		OUTFLOW		EOM CONTENT*	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	2,350	117	2,057	126	55,042	124
NOVEMBER	1,981	132	2,190	161	55,229	124
DECEMBER	2,092	163	2,243	160	54,974	124
JANUARY	2,312	173	2,253	170	54,795	123
FEBRUARY	2,046	151	2,038	169	54,356	122
MARCH	3,298	138	3,265	190	54,660	121
APRIL	4,850	115	3,966	139	55,863	120
MAY	14,890	225	10,070	185	58,082	122
JUNE	14,861	219	16,288	266	55,743	115
JULY	6,725	181	6,593	127	55,255	118
AUGUST	3,808	142	7,519	186	54,635	123
SEPTEMBER	2,806	127	4,161	158	53,878	122
ANNUAL	62,019	175	62,643	182		
APRIL-JULY	41,326	194				

* EOM Content – End of Month Content

Figure DKG6:
Pactola Reservoir



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 123,048 acre-feet with an additional surcharge capacity of 57,308 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.

Reclamation's Sedimentation and River Hydraulics Group of the Technical Service Center in Denver conducted a sedimentation survey of Angostura Reservoir in 2004 and provided a survey report and new Area and Capacity Tables in August of 2005. The last survey was done in 1979. Angostura Reservoir accumulated 7,716 acre-feet of sediment since the last survey. Since construction in 1949, Angostura has accumulated 36,867 acre-feet of sediment. The sedimentation rate from 1949 through 2004 has averaged 670 acre-feet per year. The new Area and Capacity Tables were first used in water year 2006.

Water Year 2011 Operations Summary

Angostura Reservoir started water year 2011 at elevation 3181.31 feet and storage of 97,886 acre-feet, which is 5.89 feet and 25,162 acre-feet below the top of the conservation pool. Inflows for water year 2011 totaled 129,587 acre-feet (165 percent of the average). Peak inflows occurred in May, totaling 30,423 acre-feet for the month. Peak spill of 2,679 cfs occurred on March 14, 2011. The peak reservoir elevation was 3186.99 feet and storage of 122,082 acre-feet and occurred on May 22, 2011. The minimum elevation was 3180.61 feet and storage of 95,074 acre-feet and occurred on September 30, 2011. Water year 2011 ended at elevation 3180.60 feet and storage of 95,074 acre-feet, which is 6.60 feet and 27,974 acre-feet below the top of the conservation pool. Precipitation for water year 2011 was 103 percent of average.

The Angostura Irrigation District had a full water allotment for its irrigators. Releases for irrigation began June 21 and reached a peak of 282 cfs on July 20. The irrigation release was terminated on September 18 with 95,422 acre-feet in total storage and 53,217 acre-feet in active storage. Total irrigation releases were 36,192 acre-feet.

An Emergency Management Tabletop exercise was held on February 9, 2011. The District started a controlled release from the reservoir to alleviate flood conditions late February. On February 28, 2011, Angostura Dam went into Internal Alert at elevation 3186.0. A manual release of 200 cfs was set through the center radial gate. On March 13, 2011, Angostura was placed in a Response Level 1 status. Inflows peaked at 2900 cfs with a peak release of 2700 cfs. Angostura was taken out of Response Level 1 on March 18, 2011, and placed back into Internal Alert. Angostura remained in Internal Alert until July 28, 2011, when it was taken out.

The Annual Facility Review was done on August 11, 2011, by personnel from the Rapid City Field Office.

Monthly Statistics for Water Year 2011

October EOM elevation at Angostura Reservoir was above average. October inflow was below average. Angostura ended the month 11.8 feet from full.

November EOM elevation at Angostura Reservoir was above average. November inflow was below average. Angostura ended the month 11.2 feet from full.

December EOM elevation at Angostura Reservoir was above average. December inflow was third highest in 58 years of record. Angostura ended the month 10.6 feet from full.

January EOM elevation at Angostura Reservoir was above average. January inflow was above average. Angostura ended the month 10.2 feet from full.

February EOM elevation at Angostura Reservoir was above average. February inflow was second highest in 58 years of record. Emergency Management Tabletop exercise was done on February 23. Angostura went into Internal Alert February 28 at reservoir elevation 3186.00. Flood control release of 250 cfs. Angostura ended the month 9.5 feet from full.

March EOM elevation at Angostura Reservoir was above average. March inflows were the second highest in 58 years of record. Angostura went into Response Level 1 March 13. Inflows peaked at 2,900 cfs with a peak release of 2,700 cfs. Angostura was taken out of Response Level 1 on March 18 and placed back into Internal Alert. Angostura ended the month 7.3 feet from full.

April EOM elevation and April inflow at Angostura Reservoir were above average. Associate Facility Review done on April 19. Angostura remained in Internal Alert through April. Angostura ended the month 5.3 feet from full.

May EOM elevation at Angostura Reservoir was above average. May inflows were much above average. Peak release was 5,900 cfs on May 26. Angostura ended the month 0.3 feet from full. Angostura remained in Internal Alert for the month.

June EOM elevation at Angostura Reservoir was above average. June inflows were average. Began filling the canal on June 21. Angostura ended the month 0.5 feet from full. Angostura remained in Internal Alert for the month.

July EOM elevation at Angostura Reservoir was much above average. July inflow was above average. Angostura left Internal Alert July 28. Angostura ended the month 2.1 feet from full.

August EOM elevation at Angostura Reservoir was above average. August inflow was below average. Angostura ended the month 4.4 feet from full.

September EOM elevation at Angostura Reservoir was above average. September inflow was third lowest in 58 years of record. Annual site inspection was completed on September 10. Canal shut off on September 18. Angostura ended the month 5.9 feet from full.

Additional statistical information on Angostura Reservoir and its operations during water year 2011 can be found on Table DKT8 and Figure DKG7.

Table DKT8:
Hydrologic Data for Water Year 2011
Angostura Reservoir

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	3,163.00	42,205	42,205
TOP OF ACTIVE CONSERVATION	3,187.20	123,048	80,843
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL			

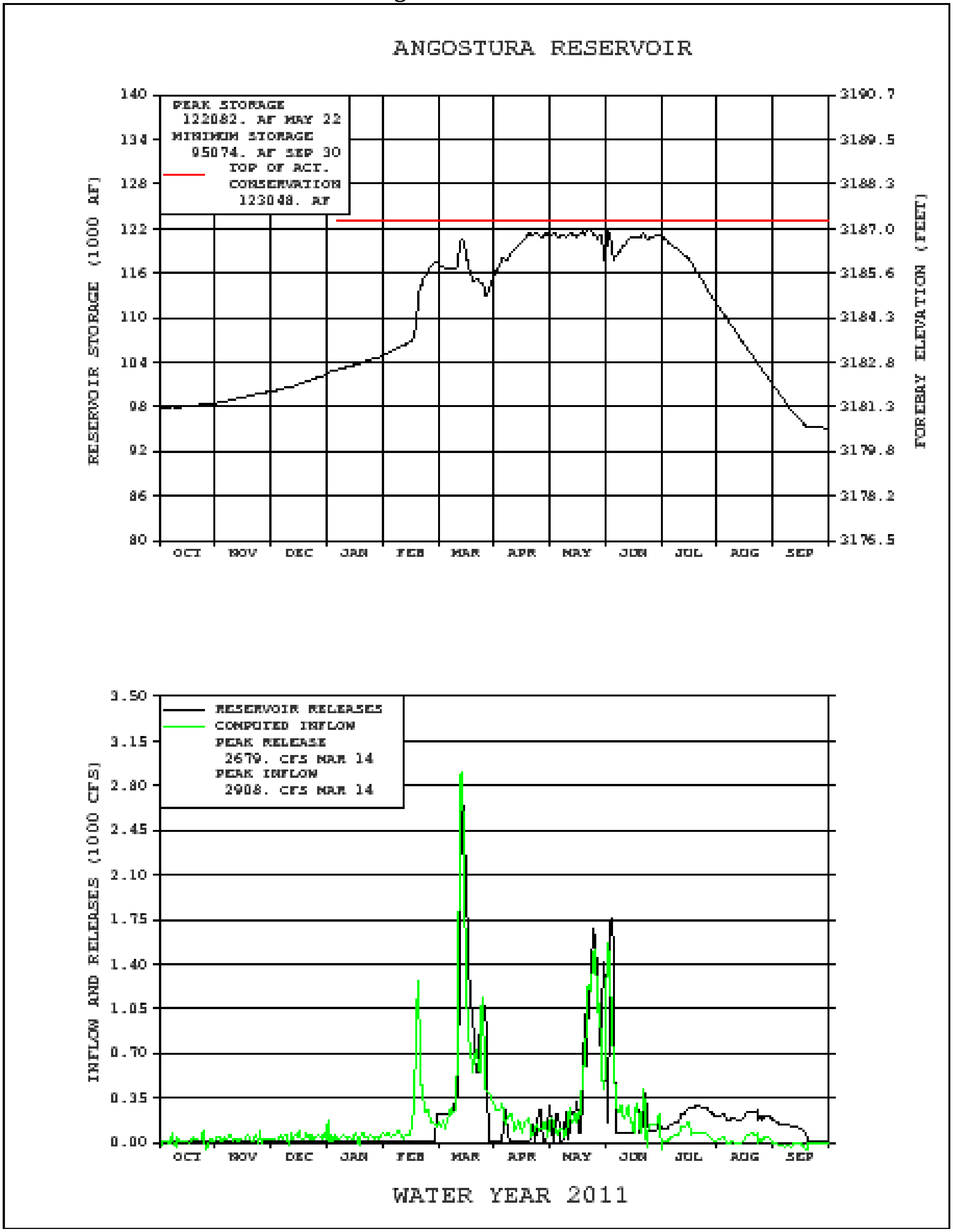
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	3,181.31	97,886	OCT 01, 2010
END OF YEAR	3,180.60	95,074	SEP 30, 2011
ANNUAL LOW	3,180.60	95,074	SEP 30, 2011
ANNUAL HIGH	3,187.27	122,082	MAY 22, 2011
HISTORIC HIGH	3,189.37	**152,228	MAY 20, 1978

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	129,587	OCT ‘10-SEP ‘11	132,399	OCT ‘10-SEP ‘11
DAILY PEAK (CFS)	2,908	MAR 14, 2011	5,210	SEP 18, 2011
DAILY MINIMUM (CFS)	0	*	0	*

MONTH	INFLOW		OUTFLOW		EOM CONTENT***	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	668	42	115	12	76,340	78
NOVEMBER	1,689	77	94	7	78,577	80
DECEMBER	2,709	151	81	16	80,414	80
JANUARY	2,467	120	80	17	82,004	81
FEBRUARY	12,771	188	315	35	84,360	80
MARCH	44,399	386	46710	1113	92,509	82
APRIL	9,358	122	3340	89	100,314	86
MAY	30,423	173	34,040	261	121,441	100
JUNE	21,138	110	17,521	91	120,801	100
JULY	3,705	54	13,002	83	113,743	101
AUGUST	1,489	49	12,486	97	103,974	102
SEPTEMBER	0	0	4,615	84	97,886	100
ANNUAL	129,587	165	132,399	169		
APRIL-JULY	64,624	125				

* 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 at Elevation 3189.0 on June 18, 1962)
*** EOM Content – End of Month Content

Figure DKG7
Angostura Reservoir



KEYHOLE RESERVOIR

Background

Keyhole Reservoir (P-S MBP) located on the Belle Fourche River below Moorcroft, Wyoming, has a conservation capacity of 188,671 acre-feet (182,079 acre-feet active) and 140,463 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 year 1992 through 1994 show that inflow forecasting to Keyhole Reservoir is not reliable since there is no consistent snow pack and precipitation is highly cyclical. No further efforts to develop forecast models are planned.

Reclamation's Sedimentation and River Hydraulics Group of the Technical Service Center in Denver conducted a sedimentation survey of Keyhole Reservoir in 2003 and provided a survey report and new area and capacity tables in July of 2005. The last survey was done in 1978. Keyhole Reservoir accumulated 5,082 acre-feet of sediment since the last survey. Since construction in 1952, Keyhole has accumulated 12,495 acre-feet of sediment. The sedimentation rate from 1952 through 2003 has averaged 240 acre-feet per year. The new Area and Capacity Tables were first used in water year 2006.

Water Year 2011 Operations Summary

Keyhole Reservoir started water year 2011 at elevation 4088.96 feet and storage of 109,315 acre-feet, which is 10.34 feet and 79,356 acre-feet below the top of the conservation pool. Inflows for water year 2011 totaled 56,959 acre-feet (356 percent of the average). Peak inflows occurred in May, totaling 33,017 acre-feet for the month. The peak reservoir elevation was 4097.79 feet, storage of 174,842 acre-feet, and occurred on June 20, 2011. The minimum elevation was 4088.72 feet, storage of 107,885 acre-feet, and occurred on November 5, 2010. Water year 2011 ended at elevation 4096.81 feet and storage of 166,274 acre-feet, which is 2.49 feet and 22,397 acre-feet below the top of the conservation pool. Precipitation was 111 percent of average.

There were no irrigation releases for water year 2011.

An Emergency Management/Security Orientation was held February 22, 2011.

An Annual Site Inspection (ASI) was conducted August 16, 2011, by personnel from the Rapid City Field Office.

Reclamation's Sedimentation and River Hydraulics Group of the Technical Service Center in Denver conducted a sedimentation survey of Keyhole Reservoir in 2003 and provided a survey report and new area and capacity tables in July of 2005. The last survey was completed in 1978. Keyhole Reservoir accumulated 5,082 acre-feet of sediment since the last survey. Since construction in 1952, Keyhole has accumulated 12,495 acre-feet of sediment. The sedimentation rate from 1952 through 2003 has averaged 240 acre-feet per year. The new Area and Capacity Tables were first used in water year 2006.

Contract R11PC60253 Toe Drain Measurement Structure Installation was awarded to Complete Concrete for $27,401.00. This contract was substantially complete in November 2011.

Monthly Statistics for Water Year 2011

October EOM elevation at Keyhole Reservoir was above average. October inflow was below average. Keyhole ended the month 10.5 feet from full.

November EOM elevation at Keyhole Reservoir was above average. November inflow was above average. Keyhole ended the month 10.5 feet from full.

December EOM elevation at Keyhole Reservoir was above average. December inflow was fourth highest in 58 years of record. Keyhole ended the month 10.4 feet from full.

January EOM elevation at Keyhole Reservoir was above average. January inflow was much above average. Keyhole ended the month 10.3 feet from full.

February EOM elevation at Keyhole Reservoir was above average. February inflow was above average. Keyhole ended the month 9.7 feet from full.

March EOM elevation at Keyhole Reservoir was above average. March inflow was much above average. Keyhole ended the month 6.8 feet from full.

April EOM elevation at Keyhole Reservoir was above average. April inflow was much above average. Mechanical Comprehensive Facility Review was done on April 13. Keyhole ended the month 6.2 feet from full.

May EOM elevation at Keyhole Reservoir was much above average. May inflow was third highest in 58 years of record. Civil Comprehensive Facility Review was done on May 11. Keyhole ended the month 2.1 feet from full.

June EOM elevation at Keyhole Reservoir was fourth highest in 58 years of record. June inflows were above average. Corps of Engineers limited releases to uncontrolled spill. Keyhole ended the month 1.6 feet from full.

July EOM elevation at Keyhole Reservoir was fourth highest in 58 years of record. July inflows were below average. Corps of Engineers limited releases to uncontrolled spill. Keyhole ended the month 1.8 feet from full.

August EOM elevation at Keyhole Reservoir was fourth highest in 58 years of record. August inflow was below average. Keyhole ended the month 2.2 feet from full.

September EOM elevation at Keyhole Reservoir was fourth highest in 58 years of record. September inflow was below average. Keyhole ended the month 6.2 feet from full. Water year 2011inflows was the third highest in record.

Additional statistical information on Keyhole Reservoir and its operations during WY 2011 can be found on Table DKT9 and Figure DKG8

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Table DKT9:
Hydrologic Data for Water Year 2011
Keyhole Reservoir

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	4,051.00	6,592	6,592
TOP OF ACTIVE CONSERVATION	4,099.30	188,671	182,079
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL	4,111.50	329,134	140,463

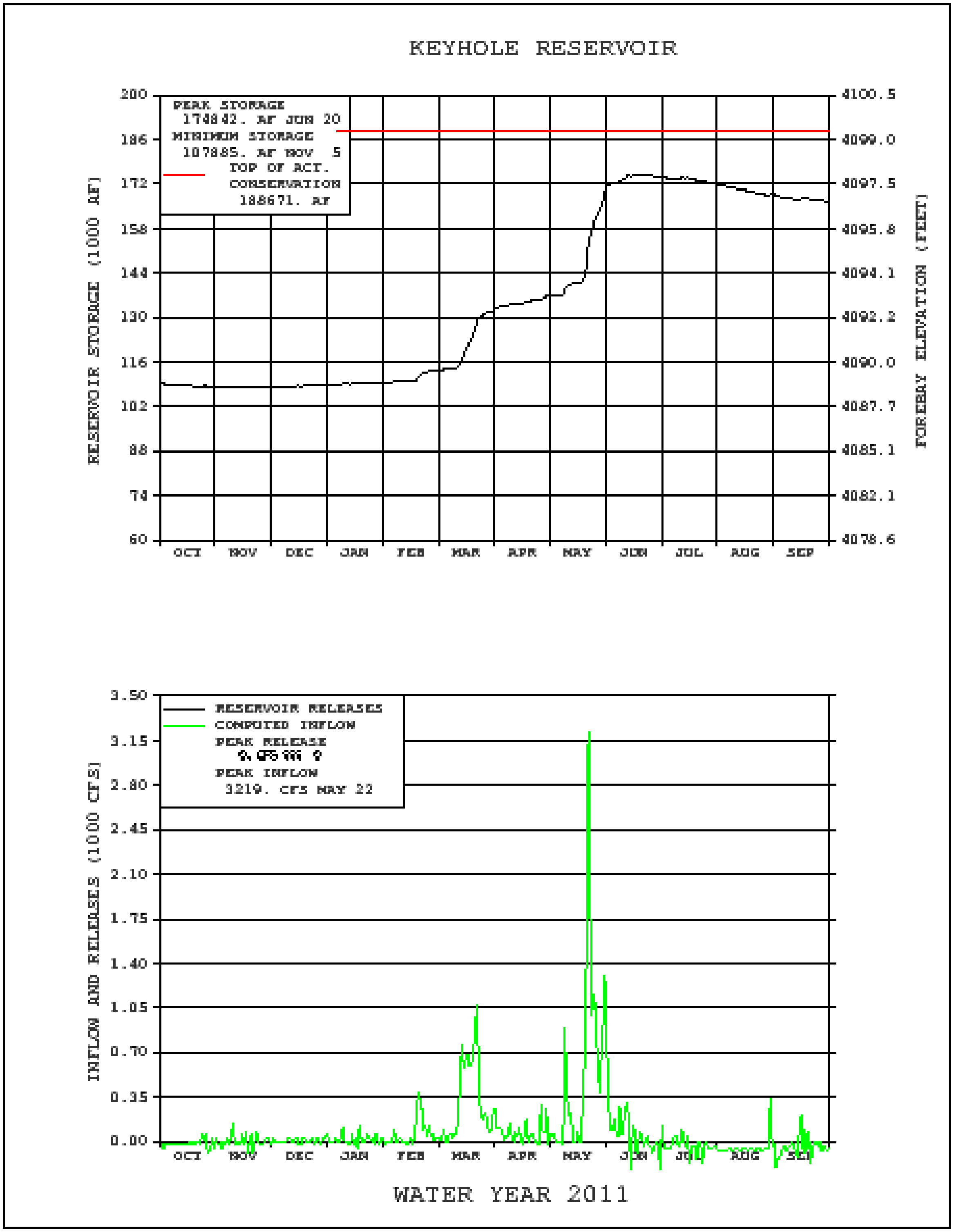
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4,088.96	109,315	OCT 01, 2010
END OF YEAR	4,096.81	166,247	SEP 30, 2011
ANNUAL LOW	4,088.72	107,885	NOV 05, 2010
ANNUAL HIGH	4,097.79	174,842	JUN 20, 2011
HISTORIC HIGH	4,100.38	210,222	MAY 21, 1978

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	56,959	OCT 10-SEP 11	0	OCT 10-SEP 11
DAILY PEAK (CFS)	3,218	MAY 22, 2011	0	JUN 14, 2011
DAILY MINIMUM (CFS)	0	*	0	*

MONTH	INFLOW		OUTFLOW		EOM CONTENT**	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	-1193	NA	0	NA	108,122	123
NOVEMBER	60	NA	0	NA	108,182	124
DECEMBER	654	484	0	NA	108,836	124
JANUARY	840	185	0	NA	109,676	125
FEBRUARY	3,653	130	0	NA	113,329	125
MARCH	19,025	280	0	NA	132,354	137
APRIL	4,186	161	0	NA	136,540	141
MAY	33,017	635	0	NA	169,557	169
JUNE	4,308	122	0	NA	173,865	170
JULY	-1945	NA	0	NA	171,920	176
AUGUST	-2970	NA	0	NA	168,950	184
SEPTEMBER	-2676	NA	0	NA	166,274	185
ANNUAL	56,959	345	0	NA		
APRIL-JULY	39,566	376				

* Frequently observed during fall and winter months
** EOM Content – End of Month Content

Figure DKG8:
Keyhole Reservoir



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 2011 Operations Summary

Shadehill Reservoir started water year 2011 at elevation 2269.03 feet and storage of 105,860 acre-feet, which is 2.97 feet and 14,312 acre-feet below the top of the conservation pool. Inflows for water year 2011 totaled 272,520 acre-feet (362 percent of the average). Peak inflows occurred in March, totaling 103,215 acre-feet for the month. The peak reservoir elevation was 2276.65 feet, storage of 145,203 acre-feet, and occurred on March 22, 2011. The minimum elevation was 2265.74 feet, storage of 91,390 acre-feet, and occurred on February 13, 2011. Water year 2011 ended at elevation 2272.04 feet and storage of 120,373 acre-feet, which is 0.04 feet and 201 acre-feet into the flood pool. Precipitation for the water year was 111 percent of average. Inflows to Shadehill Reservoir for water year 2011 were the fourth highest for the period of record of the dam. The peak inflow occurred on March 22, 2011, at 8,159 cfs, with a spill from the service spillway of 3,500 cfs.

All project irrigation demands were met from river maintenance releases. There were no storage releases for irrigation needed during water year 2011.

An Emergency Management/Security orientation was conducted on March 24, 2011. On March 17 Shadehill went into Internal Alert with a reservoir level of 2272.6 and inflows of 8,100 cfs. Shadehill Reservoir remained in Internal Alert all summer and was taken out of Internal Alert on October 5, 2011. The Corps of Engineers directed Reclamation under Flood Control Storage Use at USBR Section 7 Projects to use available flood control storage space at Shadehill due to the flooding on the Missouri River. The operation at Shadehill from June 10, 2011, to August 1, 2011, (originally to be September 1, 2011) was that Shadehill was to remain in fill and spill mode until September 1 (Reclamation was allowed to release water on August 1 due to improvement in the situation at Lake Oahe). The only gate release allowed was to maintain a minimum flow of 50 cfs in the river below the dam.

An Annual Site Inspection (ASI) was conducted August 23, 2011, by personnel from the Rapid City Field Office.

Contract R11PC60187 Operation and Maintenance Road Repair were awarded to Miller Construction for $90,250.00. This contract was substantially complete in November 2011.

Contract R11PC60202 Coatings Repair of Shadehill Dam 72-inch Steel Outlet Pipe was awarded to Long Painting Company for $273,798.35 to remove and recoat the entire pipe. This contract was substantially compete in October 2011.

Contract R11PC60163 Ketterling's Point Shore Protection was awarded to Aspen Construction for $516,826.00. This contract was delayed due to high water levels and a release restriction required by the Corps of Engineers due to Missouri River flood conditions. The contractor began stockpiling riprap for the revetment in December 2011 and the contract is planned for completion in the summer of 2012.

Monthly Statistics for Water Year 2011

October EOM elevation at Shadehill Reservoir was above average. October inflow was below average. Controlled release at 50 cfs. Shadehill finished the month 4.2 feet from full.

November EOM elevation at Shadehill Reservoir was above average. November inflow was above average. Controlled release at 60 cfs. Shadehill finished the month 4.8 feet from full.

December EOM elevation at Shadehill Reservoir was above average. December inflow was above average. Controlled release at 60 cfs. Shadehill finished the month 5.4 feet from full.

January EOM elevation at Shadehill Reservoir was above average. January inflow was above average. Controlled release at 61 cfs. Shadehill finished the month 6.0 feet from full.

February EOM elevation at Shadehill Reservoir was much above average. February inflow was above average. Controlled release at 61 cfs. Shadehill finished the month 4.9 feet from full.
March EOM elevation at Shadehill Reservoir was fifth highest in 58 years of record. March inflow was fourth highest of 58 years of record. Internal Alert declared on March 17, when the fore bay reached elevation 2272.0. Combined (spillway and controlled) release at 1,342 cfs. Emergency Management orientation was completed on March 30. Shadehill ended the month 1.8 feet into the flood pool.

April EOM elevation at Shadehill Reservoir was fifth highest in 58 years of record. April inflow was much above average. Combined (spillway and controlled) release at 903 cfs. Shadehill remained in Internal Alert. Shadehill ended the month 0.9 feet into the flood pool.

May EOM elevation at Shadehill Reservoir was very much above average. May inflow was above average. Combined (spillway and controlled) release at 1,153 cfs. Shadehill remained in Internal Alert. Shadehill ended the month 2.2 feet into the flood pool.

June EOM elevation at Shadehill Reservoir was the highest in 58 years of record. June inflow was third highest in 58 years of record. Shadehill remained in Internal Alert. Combined (spillway and controlled) release at 701 cfs. Shadehill ended the month 1.6 feet into the flood pool.

July EOM elevation at Shadehill Reservoir was fourth highest in 58 years of record. July inflow was very much above average. Combined (spillway and controlled) release at 228 cfs. COE restricted releases to 50 cfs. Shadehill remained in Internal Alert. Shadehill ended the month 0.6 feet into the flood pool.

August EOM elevation at Shadehill Reservoir was the highest in 58 years of record. August inflow was second highest in 58 years of record. Combined (spillway and controlled) release at 75 cfs. Shadehill remained in Internal Alert. Shadehill ended the month 1.3 feet into the flood pool.

September EOM elevation at Shadehill Reservoir was the highest in 58 years of record. September inflow was second highest in 58 years of record. Combined (spillway and controlled) release at 107 cfs. Shadehill remained in Internal Alert. Shadehill ended the month 0.1 feet into the flood pool.

Additional statistical information on Shadehill Reservoir and its operations during water year 2011 can be found on Table DKT10 and Figure DKG9.

Table DKT10:
Hydrologic Data for Water Year 2011
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

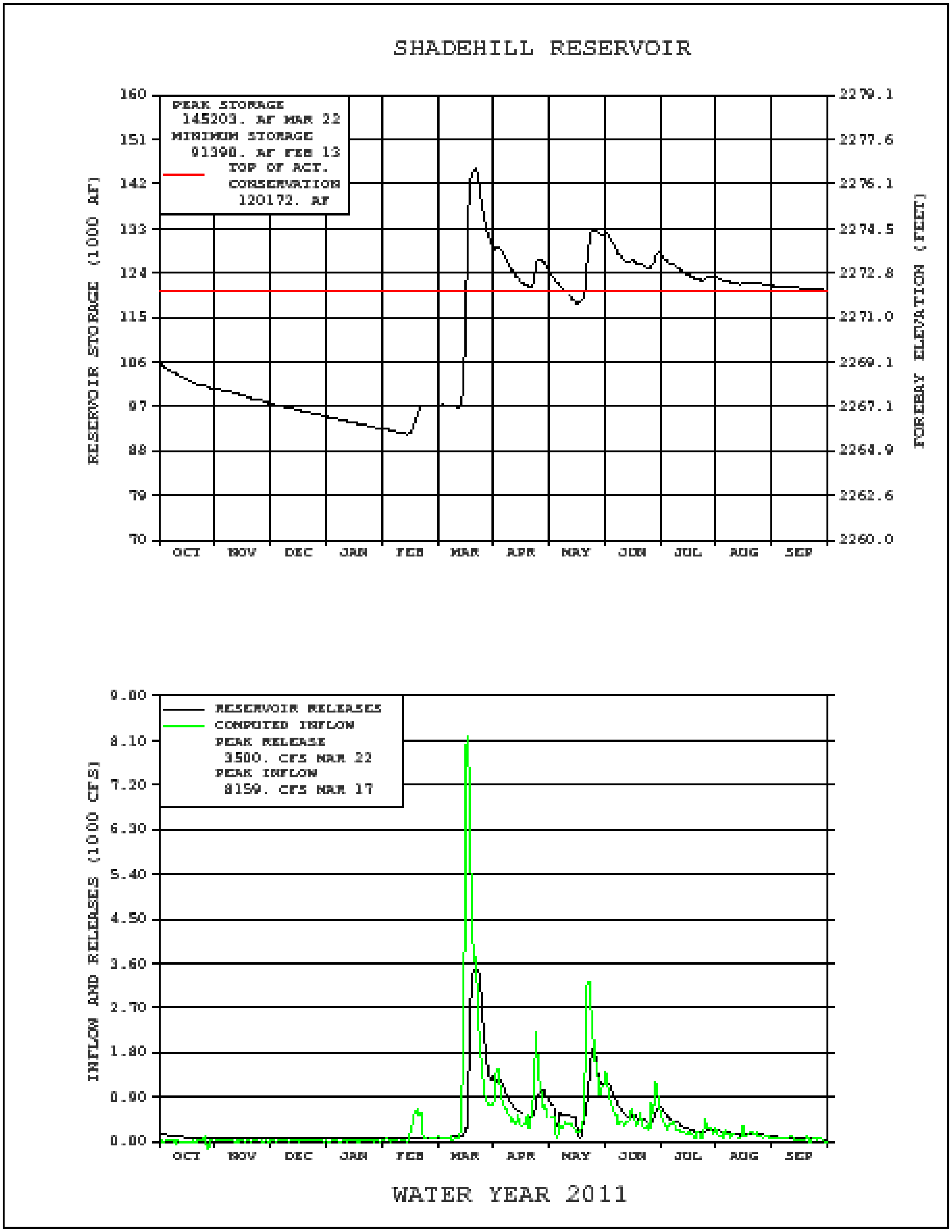
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2,268.95	105,490	OCT 01, 2010
END OF YEAR	2,272.04	120,373	SEP 30, 2011
ANNUAL LOW	2,265.74	91,390	FEB13, 2011
ANNUAL HIGH	2,276.65	145,203	MAR 22, 2011
HISTORIC HIGH	2,297.90	318,438	APR 10, 1952

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	272,520	OCT 10-SEP 11	258,007	OCT 10-SEP 11
DAILY PEAK (CFS)	8,159	MAR 22, 2011	3500	MAR 22,2011,
DAILY MINIMUM (CFS)	-153	OCT 27, 2011	32	SEP 30,2011

MONTH	INFLOW		OUTFLOW		EOM CONTENT**	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	-311	NA	5,091	161	100,458	91
NOVEMBER	718	100	3,501	136	97,675	90
DECEMBER	965	135	3,737	153	94,903	89
JANUARY	1,159	126	3,666	157	92,396	88
FEBRUARY	8,159	257	3,316	159	97,239	92
MARCH	103,215	433	71,100	673	129,354	108
APRIL	44,776	208	49,274	270	124,856	102
MAY	53,761	467	47,185	441	131,432	106
JUNE	34,496	381	37,788	436	138,140	103
JULY	15,230	415	20,209	367	123,161	101
AUGUST	7,562	2,471	9,291	209	121,432	103
SEPTEMBER	2,791	NA	3,850	108	120,373	106
ANNUAL	272,520	362	258,007	349		
APRIL-JULY	148,263	324				

* Frequently observed during fall and winter months
** EOM Content – End of Month Content

Figure DKG9:
Shadehill Reservoir



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 172,873 acre-feet (169,790 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 is satisfied by the reservoir filling, the South Dakota Department of Environment and Natural Resources provides guidelines for complying with water rights on the Belle Fourche River. The District is 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 are greater than 45 cfs, the District is required to bypass up to 60 cfs for downstream irrigation rights. Any flows in excess of these amounts can be diverted into the reservoir and stored. If all of these rights are not needed, the District can divert flows into the reservoir.

Reclamation's Sedimentation and River Hydraulics Group (of the Technical Service Center in Denver) conducted a sedimentation survey of Belle Fourche Reservoir in 2006 and provided a survey report and new area and capacity tables in April, 2007. The last survey was done in 1949. Belle Fourche Reservoir accumulated 19,204 acre-feet since the 1949 survey and 36,364 acre-feet since the original survey in 1910. The sedimentation rate from 1910 through 2006 averages 375 acre-feet per year. The new Area and Capacity Tables were first used in water year 2008.

Water Year 2011 Operations Summary

Belle Fourche Reservoir started water year 2011 at elevation 2,964.98 feet and storage of 102,248 acre-feet, which is 10.02 feet and 70,625 acre-feet below the top of the conservation pool. Inflows totaled 121,291 acre-feet, which was 104 percent of the average. Inflows to the reservoir were limited to passing flows to the river at the Diversion Dam. This was required due to high reservoir levels during water year 2011. The peak reservoir elevation was 2,975.69 feet, storage of 178,487 acre-feet, and occurred on May 26, 2011. The minimum elevation was 2964.65 feet, storage of 100,306 acre-feet, and occurred on October 20, 2010. WY 2011 ended at elevation 2967.00 feet and storage of 114,610 acre-feet, which is 8 feet and 58,263 acre-feet below the top of the conservation pool. Belle Fourche ended water year 2011 with the fourth highest end of September elevation in 58 years of record. Precipitation for the water year was 104 percent of average.

Water users were allocated 18 inches of water, a full allocation, for the 2011 irrigation season.

The Inlet Canal was turned on March 11, 2011. The North Canal and South Canals were turned on March 22, 2011. South Canal and North Canal were not shut off until October 3, 2011, in water year 2012. Irrigation releases for the 2011 season were North Canal 61,739 acre-feet, South Canal 47,052 acre-feet, and Inlet Canal-Johnson Lateral 4,406 acre-feet for a total of 91,473 acre-feet.

An Emergency Management Tabletop exercise was held February 10, 2011. The Belle Fourche Reservoir experienced inflows which were well above average from late February through May. The reservoir went into Internal Alert on May 20, 2011, at elevation 2974.13. The reservoir then moved to Response Level 1 on May 22, 2011. On May 21, 2011, inflows peaked at 2,400 cfs. All of the inflows were from Owl Creek as diversions from the Belle Fourche River were shut off.

The annual settlement survey was completed. This survey is done approximately 1 month after the peak elevation for the year has occurred in the reservoir. Inclinometer readings were taken quarterly as required by the periodic monitoring schedule.

An Annual Site Inspection (ASI) was conducted August 9, 2011, by personnel from the Rapid City Field Office.

Monthly Statistics for Water Year 2011

October EOM elevation at Belle Fourche Reservoir was much above average. October inflow was much below average. Inlet Canal opened October 21 after lining installation. Belle Fourche ended the month 9.6 feet from full.

November EOM elevation at Belle Fourche Reservoir was much above average. November inflow was much above average. Belle Fourche ended the month 7.4 feet from full.

December EOM elevation at Belle Fourche Reservoir was much above average. December inflow was highest in 58 years of record. Belle Fourche ended the month 5.2 feet from full.

January EOM elevation at Belle Fourche Reservoir was the fourth highest in 58 years of record. January inflow was the fourth highest in 58 years of record. Diversion Dam was closed January 28. Belle Fourche ended the month 2.9 feet from full.

February EOM elevation at Belle Fourche Reservoir was the third highest in 58 years of record. February inflow was below average. Emergency Management Orientation done on February 10. Diversion Dam remained closed. Belle Fourche ended the month 1.9 feet from full.

March EOM elevation at Belle Fourche Reservoir was the third highest in 58 years of record. March inflow was much below average. Small releases began to the North and South Canal on March 21. Diversion Dam remained closed. Belle Fourche ended the month 1.1 feet from full.

April EOM elevation at Belle Fourche Reservoir was much above average. April inflow was the fourth lowest in 58 years of record. Diversion Dam remains closed. Belle Fourche ended the month 1.2 feet from full.

May EOM elevation at Belle Fourche Reservoir was the fourth highest in 58 years of record. May inflow was much above average (only from Owl Creek). Internal Alert was declared on May 20 when the fore bay reached elevation 2974.0. The reservoir then moved to Response Level 1 on May 22, 2011. The reservoir elevation peaked on May 26, 2011, at elevation 2975.69. On May 21, 2011, inflows peaked at 2,400 cfs. All of the inflows were from Owl Creek as Inlet Canal remained shut off at Diversion Dam. Belle Fourche ended the month full and 0.2 above the conservation pool.

June EOM elevation at Belle Fourche Reservoir was above average. June inflow was average. On June 6, 2011, Belle Fourche Reservoir moved from Response Level 1 back to Internal Alert at elevation 2974.42. Inlet Canal was opened June 13. Belle Fourche ended the month 0.6 feet from full.

July EOM elevation at Belle Fourche Reservoir was the fourth highest in 58 years of record. July inflow was above average. On July 20, 2011, the reservoir elevation was 2973.78 and Belle Fourche was taken off Internal Alert. Belle Fourche ended the month 2.8 feet from full.

August EOM elevation at Belle Fourche Reservoir was much above average. August inflow was above average. Belle Fourche ended the month 6.2 feet from full.

September EOM elevation at Belle Fourche Reservoir was the fourth highest in 58 years of record. In flow was much above average. Belle Fourche ended the month 8.0 feet from full.

Additional statistical information on Belle Fourche Reservoir and its operations during water year 2011 can be found on Table DKT11 and Figure DKG10.

Table DKT11:
Hydrologic Data for Water Year 2011
Belle Fourche Reservoir

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2,927.00	3,083	3,083
TOP OF ACTIVE CONSERVATION	2,975.00	172,873	169,790
TOP OF JOINT USE			
TOP OF EXCLUSIVE FLOOD CONTROL			

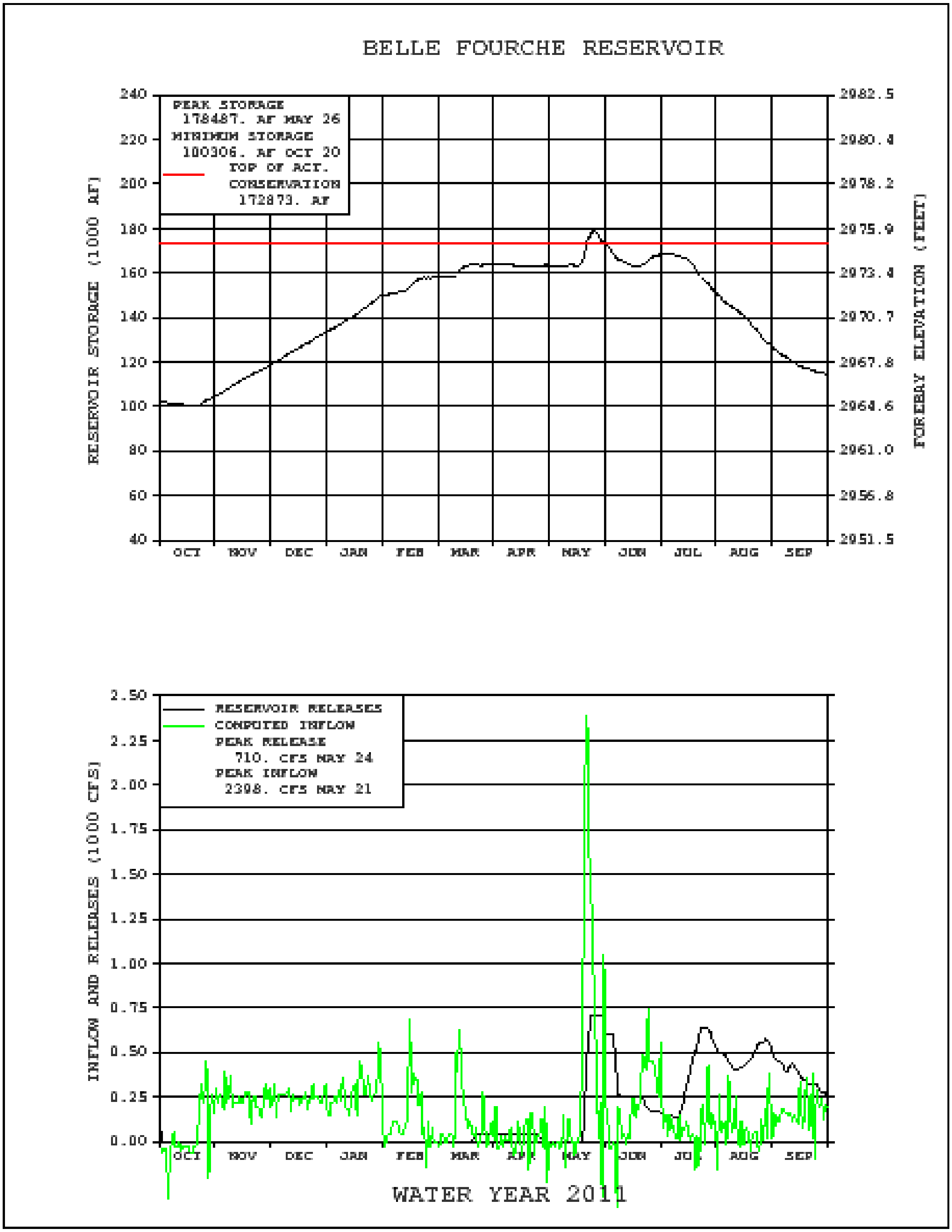
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2,964.95	102,070	OCT 01, 2010
END OF YEAR	2,967.00	114,610	SEP 30, 2011
ANNUAL LOW	2,964.65	100,306	OCT 20, 2010
ANNUAL HIGH	2,975.69	178,487	MAY 26, 2011
HISTORIC HIGH	2,975.92	180,387	JUN 07, 2008

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	73,693	OCT 09-SEP 10	89,336	OCT 09-SEP 10
DAILY PEAK (CFS)	2,306	APR 23, 2010	675	JUL 18, 2010
DAILY MINIMUM (CFS)	0	*	0	*

MONTH	INFLOW		OUTFLOW		EOM CONTENT**	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	2,545	252	105	18	104,688	147
NOVEMBER	13,984	141	0	0	118,672	147
DECEMBER	15,147	161	0	0	133819	149
JANUARY	16,454	172	0	0	150,303	151
FEBRUARY	7,538	74	0	0	157,841	144
MARCH	6,970	43	832	1040	163,979	131
APRIL	1,215	9	2019	527	163,275	118
MAY	25,139	170	14,252	196	174,162	120
JUNE	11,706	100	17,867	109	168,001	119
JULY	3,704	158	22,495	61	151,358	140
AUGUST	2,192	214	29,555	83	126,493	169
SEPTEMBER	4,621	215	21,803	128	114,610	184
ANNUAL	121,190	113	108,928	95		
APRIL-JULY	43,912	100				

* Frequently observed during fall and winter months
** EOM Content – End of Month Content

Figure DKG10:
Belle Fourche Reservoir



OPERATING PLANS FOR WATER YEAR 2012

CLARK CANYON RESERVOIR

Three operating plans were prepared for 2012 to show the operations of Clark Canyon Reservoir which could occur under various runoff conditions. These operations for the three runoff conditions are shown in Table MTT12A-C and Figure MTG13. These plans are presented only to show the probable limits of operations; therefore, unpredictable conditions may cause the actual operations to vary widely from the plans presented here. Flood control operations will be coordinated with the U. S. Army Corps of Engineers (Corps) as specified by the Flood Control Regulations. The Corps will issue instructions on release rates when storage rises into or above the joint use space reserved for flood control.

The objectives of operations of Clark Canyon Reservoir are to meet all conservation commitments, to provide flood control in cooperation with the Corps, and meet fish, wildlife, and recreational needs. The reservoir is generally operated under the following criteria and limitations.

(1) During the fall and winter, releases are adjusted to allow storage to reach no higher than 154,195 acre-feet at elevation 5542.10 by March 1.

(2) From inflow forecasts prepared during January through the end of the spring runoff season, based on existing snow water content, releases are adjusted to allow storage to fill to 174,367 acre-feet at elevation 5546.10 during late May or early June.

(3) During May-September, reservoir releases are adjusted to meet downstream irrigation demands or to control storage in the flood pool if storage increases above the top of the joint use pool. If the Corps requests replacement storage, the reservoir is allowed to fill as high as 230,822 acre-feet at elevation 5556.50.

(4) Whenever an adequate water supply is available, releases from Clark Canyon Dam will be maintained at rates to sustain flows in the Beaverhead River below Clark Canyon Dam between 100-200 cfs. During below normal runoff years, it may be necessary to reduce the releases to as low as 25-30 cfs in the Beaverhead River below Clark Canyon Dam, the absolute minimum flow required to protect the river fishery.

(5) Whenever possible, stable flows are maintained during October through the spring to enhance the fish spawning conditions. Large fluctuations in winter release changes will be avoided whenever possible to prevent any flooding from occurring as a result of ice jams.

The total annual inflow to Clark Canyon Reservoir during 2011 was 314,648 acre-feet, 123 percent of normal. Storage on September 30, 2011, was 155,431 acre-feet at elevation 5542.35, 125 percent of average for the end of September.

Storage in Lima Reservoir, a private facility located upstream of Clark Canyon Reservoir, ended water year 2011 at 158 percent of average.

Depending on snowpack and storage conditions Lima Reservoir may store much of the early season runoff during 2012 from the Red Rock River drainage.

Clark Canyon Reservoir is expected to fill during 2012 under the most probable and maximum probable runoff conditions. Water levels under the minimum runoff conditions are expected to peak in mid April slightly below the top of the joint-use pool. However, in the most probable and maximum probable runoff condition the water level in Clark Canyon is expected to peak in late May at or above the top of the joint-use pool. Under all three plans winter releases are expected to be reduced to approximately 250 cfs, upon close coordination with Montana Fish, Wildlife, and Parks. No irrigation shortages are expected to occur under any of the plans.

The most probable October through March inflows were estimated at 50 percentile inflows or inflows that are historically exceeded 50 percent of the time. Inflows during March-June were estimated to transition from 57 percentile inflows, inflows that are historically exceeded 43 percent of the time to 74 percentile inflows or inflows that are historically exceeded 26 percent of the time. Inflows from July through September were estimated to transition from 74 percentile inflows that are historically exceeded 26 percent of the time to 57 percent inflows, or inflows that are historically exceeded 43 percent of the time.

The minimum probable October through September inflows, with the exception of June through August, were estimated to equal approximately 25 to 30 percentile inflows or inflows that are historically exceeded 70 to75 percent of the time. Inflows during June through August were estimated to equal 50 percentile inflows or inflows that are historically exceeded 50 percent of the time.

The maximum probable October through April inflows were estimated to equal 74 percentile inflows or inflows that are historically exceeded 26 percent of the time. The June through August inflows were estimated to equal 84 percentile inflows or inflows that are historically exceeded 16 percent of the time. In September inflows were again estimated to equal 75 percent inflows or inflows that are historically exceeded 25 percent of the time.

TABLE MTT12A

CLARK CANYON RESERVOIR OPERATING PLAN
Based on October 1 2011 Inflow Estimates

2012 Minimum Probable Plan

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Clark Canyon Reservoir		Initial Cont:		155.4 kaf			Minimum Cont:		10.0 kaf		Maximum Cont:		310.1 kaf	
			Elev:	5542.34 ft				Elev: 5489.22 ft				Elev: 5569.57 ft		
Hydrology	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	14.8	16.0	14.8	13.4	11.4	14.8	16.0	18.0	32.4	24.7	18.2	13.5	208.0
Evaporation Loss	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
River Release	kaf	30.7	11.9	12.3	12.3	11.5	12.3	11.9	23.1	36.3	50.9	35.8	16.8	265.8
River Release	cfs	499	200	200	200	200	200	200	376	610	828	582	282	
Min Release	cfs	500	200	200	200	200	200	200	200	200	200	200	200	
Excess Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.0	4.9	
Gordon Spring Gain	kaf	1.5	1.5	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
End-Month Elevation	ft	5539.06	5539.92	5540.44	5540.67	5540.65	5541.16	5542.00	5540.96	5540.15	5534.40	5530.09	5529.23	
End-Month Content	kaf	139.5	143.6	146.1	147.2	147.1	149.6	153.7	148.6	144.7	118.5	100.9	97.6	
Net Change Content	kaf	-15.9	4.1	2.5	1.1	-0.1	2.5	4.1	-5.1	-3.9	-26.2	-17.6	-3.3	-57.8
Diversions	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
East Bench Demand	kaf								8.1	10.2	13.8	5.8	0.8	38.7
East Bench Req Rels	kaf								14.7	18.6	25.1	10.5	1.4	70.3
East Bench Div	kaf								14.7	18.6	25.1	10.5	1.4	70.3
East Bench Short	kaf													
CCWSC Tot Demand	kaf								12.8	23.3	28.9	25.3	7.9	98.1
CCWSC Req Rels	kaf								8.1	14.7	18.2	15.9	5.0	61.9
CCWSC Div	kaf								8.1	14.7	18.2	15.9	5.0	61.9
CCWSC Shortage	kaf													
Non-proj Demand	kaf								2.4	6.7	6.0	8.9	4.4	28.4

TABLE MTT12B

CLARK CANYON RESERVOIR OPERATING PLAN
Based on October 1 2011 Inflow Estimates

<u>2012 Most Probable Plan</u>

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Clark Canyon Reservoir		Initial Cont:		155.4 kaf			Minimum Cont:		10.0 kaf		Maximum Cont:		310.1 kaf	
			Elev:	5542.34 ft				Elev: 5489.22 ft				Elev: 5569.57 ft		
Hydrology	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	21.0	20.7	19.6	16.4	14.9	17.0	22.1	24.9	47.0	34.8	21.0	20.1	279.5
Evaporation Loss	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
River Release	kaf	33.8	14.9	15.4	15.5	14.4	13.6	13.2	16.8	47.4	52.5	39.5	14.1	291.1
River Release	cfs	550	250	250	252	250	221	222	273	797	854	642	237	
Min Release	cfs	500	200	200	200	200	200	200	200	200	200	200	200	
Excess Release	kaf	3.1	3.0	3.1	3.2	2.9	1.3	1.3	1.4	10.8	7.4	7.4	0.0	
Gordon Spring Gain	kaf	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.2	1.2	
End-Month Elevation	ft	5539.71	5540.92	5541.78	5541.96	5542.06	5542.75	5544.52	5546.11	5546.03	5542.53	5538.70	5539.97	
End-Month Content	kaf	142.6	148.4	152.6	153.5	154.0	157.4	166.3	174.4	174.0	156.3	137.8	143.8	
Net Change Content	kaf	-12.8	5.8	4.2	0.9	0.5	3.4	8.9	8.1	-0.4	-17.7	-18.5	6.0	-11.6
Diversions	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
East Bench Demand	kaf								5.4	10.2	13.5	5.8	3.8	38.7
East Bench Req Rels	kaf								9.8	18.5	24.6	10.5	6.9	70.3
East Bench Div	kaf								9.8	18.5	24.6	10.5	6.9	70.3
East Bench Short	kaf													
CCWSC Tot Demand	kaf								8.8	24.4	28.9	27.3	8.9	98.3
CCWSC Req Rels	kaf								5.6	15.4	18.2	17.2	5.6	62.0
CCWSC Div	kaf								5.6	15.4	18.2	17.2	5.6	62.0
CCWSC Shortage	kaf													
Non-proj Demand	kaf								2.4	6.7	6.0	8.9	4.4	28.4

TABLE MTT12C

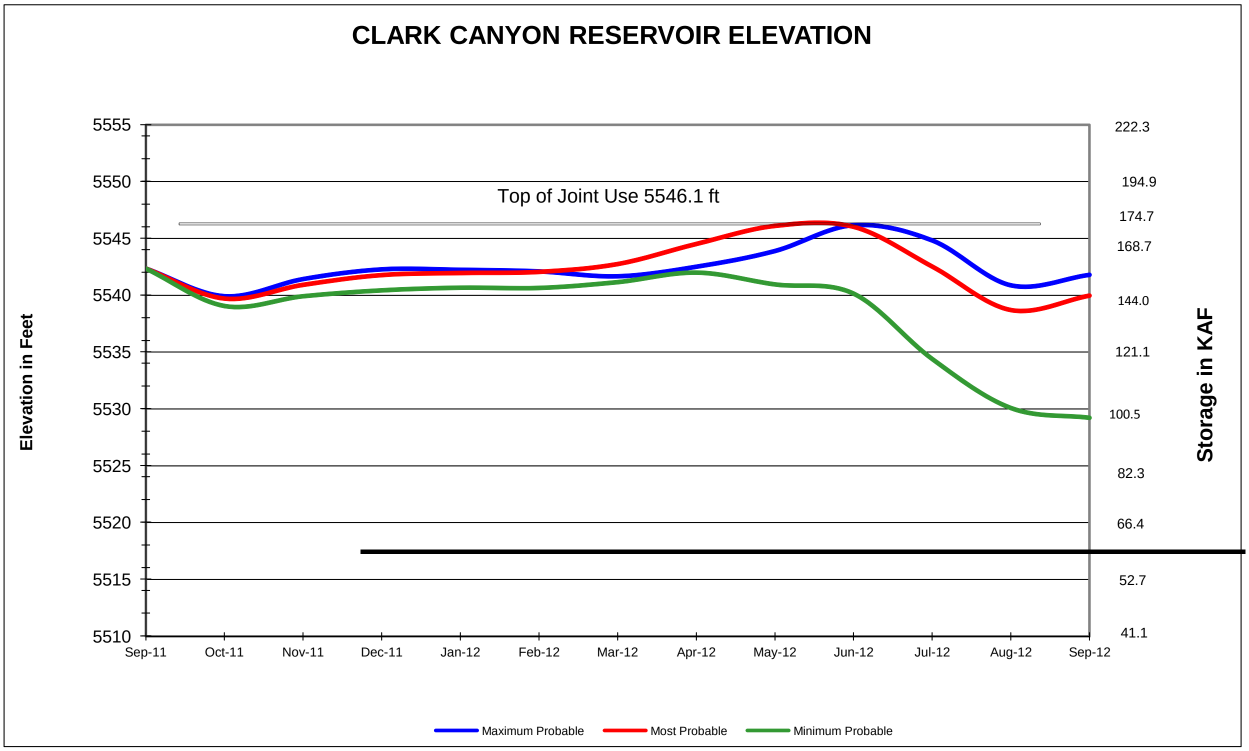
CLARK CANYON RESERVOIR OPERATING PLAN
Based on October 1 2011 Inflow Estimates

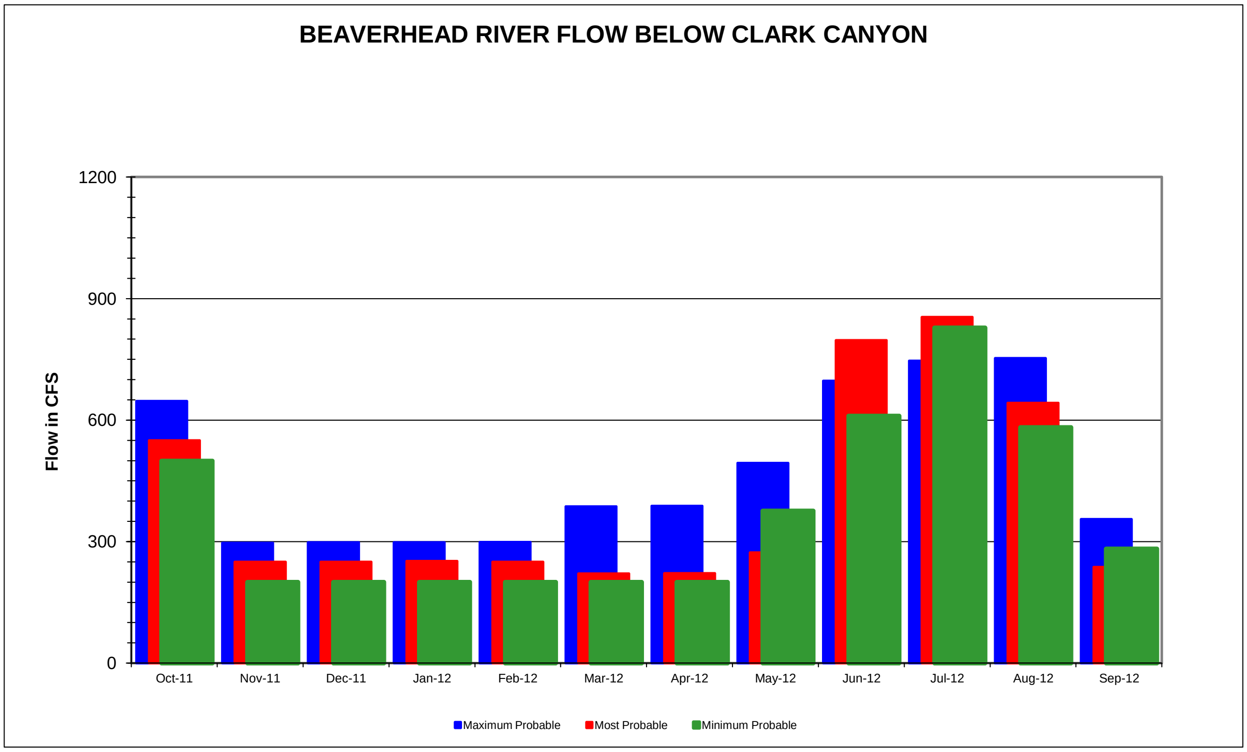
2012 Maximum Probable Plan

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Clark Canyon Reservoir		Initial Cont:		155.4 kaf		Minimum Cont:		10.0 kaf		Maximum Cont:		310.1 kaf		
			Elev:	5542.34 ft			Elev: 5489.22 ft				Elev: 5569.57 ft			
Hydrology	**2011**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
Monthly Inflow	kaf	28.0	25.0	22.5	18.1	16.5	21.7	27.2	37.3	53.1	39.0	26.7	25.6	340.7
Evaporation Loss	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
River Release	kaf	39.8	17.7	18.3	18.3	17.2	23.8	23.1	30.4	41.5	45.9	46.3	21.1	343.4
River Release	cfs	647	297	298	298	299	387	388	494	697	746	753	355	
Min Release	cfs	600	250	250	250	250	300	300	300	100	100	100	100	
Excess Release	kaf	2.9	2.8	2.9	2.9	2.8	5.4	5.2	5.4	5.2	0.0	15.5	15.0	
Gordon Spring Gain	kaf	1.5	1.5	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
End-Month Elevation	ft	5539.92	5541.43	5542.28	5542.24	5542.10	5541.67	5542.51	5543.89	5546.16	5544.82	5540.88	5541.80	
End-Month Content	kaf	143.6	150.9	155.1	154.9	154.2	152.1	156.2	163.1	174.7	167.8	148.2	152.7	
Net Change Content	kaf	-11.8	7.3	4.2	-0.2	-0.7	-2.1	4.1	6.9	11.6	-6.9	-19.6	4.5	-2.7
Diversions	**2011**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
East Bench Demand	kaf								8.1	10.2	13.8	5.8	0.8	38.7
East Bench Req Rels	kaf								14.7	18.6	25.1	10.5	1.4	70.3
East Bench Div	kaf								14.7	18.6	25.1	10.5	1.4	70.3
East Bench Short	kaf													
CCWSC Tot Demand	kaf								15.8	23.4	28.9	25.3	4.9	98.3
CCWSC Req Rels	kaf								10.0	14.7	18.2	15.9	3.1	61.9
CCWSC Div	kaf								10.0	14.7	18.2	15.9	3.1	61.9
CCWSC Shortage	kaf													
Non-proj Demand	kaf								2.4	6.7	6.0	8.9	4.4	28.4

FIGURE MTG13

CLARK CANYON RESERVOIR





WATER YEAR 2012

CANYON FERRY LAKE and POWERPLANT

Three operating plans were prepared for 2012 to show the operations of Canyon Ferry Lake which could occur under various runoff conditions. These operations for the three runoff conditions are shown in Tables MTT13A-C and Figure MTG14. These plans are presented only to show the probable limits of operations; therefore, actual conditions and operations could vary widely from the plans in order to comply with the authorized project purposes and the current general operating criteria established for Canyon Ferry Dam and Lake.

Power operations will be closely coordinated with Pennsylvania Power and Light, Montana (PPL-MT), formerly known as Montana Power Company (MPC), as specified in the formal Agreement to Coordinate Hydroelectric Power Operations dated March 1972. Flood control operations will be coordinated with the Corps of Engineers (Corps) as specified by the Flood Control Regulations Report dated March 1972. The Corps will issue instructions on release rates when storage rises into or above the joint use space reserved for flood control. Both of these documents are on file and available for review at the Bureau of Reclamation's Montana Area Office.

The objectives of operations at Canyon Ferry are to meet all conservation commitments, to provide flood control in cooperation with the Corps, and to coordinate all operations with PPL-MT to achieve optimum benefits from the water resource. Except for special operations, the reservoir is generally operated under the following criteria and limitations:

(1) The top 3 feet between elevations 3797 (1,891,888 acre-feet) and 3800 (1,992,977 acre-feet) are used exclusively for downstream flood control and when storage rises into this pool, operation of the reservoir is directed by the Corps. This storage is generally evacuated as fast as downstream conditions permit.

(2) As soon as storage has peaked, usually in June or July, power releases are adjusted so that the pool will be drawn to near elevation 3780-3782 (1,358,973-1,416,767 acre-feet) by the following April 1. Each month inflows are reevaluated and releases are adjusted accordingly. Releases to meet this schedule are limited to powerplant capacity. Water is generally not spilled to provide this drawdown.

(3) In accordance with operating procedures outlined in the license for the Madison-Missouri Hydro-electric Project, FERC Project No. 2188, most of the water stored in Hebgen Reservoir will be uniformly released from Hebgen during October through March. Releases during October and November may cause storage in Canyon Ferry Lake to rise slightly during these months. However, PPL-MT will try to limit the Hebgen drawdown during these months in an effort to maintain Canyon Ferry Lake below elevation 3794 (1,792,884 acre-feet) after December 1. Storage below elevation 3794 (1,792,884 acre-feet) prior to winter freeze-up is desired to reduce the potential for ice jam problems to occur at the head end of the lake.

(4) Beginning near the first of January and at least monthly thereafter through June, forecasts are made of the estimated spring runoff, based on snow cover and precipitation data. When these forecasts become available, operational changes may be required. Releases are set based on the most probable spring inflow forecast to allow the reservoir to fill to the top of the joint-use pool at elevation 3797 (1,891,888 acre-feet) near the end of June. On occasions, high spring runoff may result in the reservoir filling above the top of the joint-use pool to the top of the exclusive flood at elevation 3800 (1,992,997 acre-feet).

(5) If spilling is required, it is made only to the extent current inflow and the reservoir content indicates additional spills are required. Attempts are made to limit river releases to 15,000 cfs or full downstream channel capacity immediately downstream of Canyon Ferry Dam, as long as space is available.

(6) Depending on when the spring runoff starts, the release of water, based on inflow forecasts, may draw the pool as low as elevation 3770 (1,097,599 acre-feet). In a series of dry years, the pool may be drawn as low as elevation 3728 (396,031 acre-feet) to meet firm power generation requirements and satisfy PPL-MT's prior water rights. If storage is drawn below elevation 3728 (396,031 acre-feet), the powerplant efficiency is affected. If emergency maintenance is required on the dam or powerplant, the reservoir may be required to be drawn lower than elevation 3728 (396,031 acre-feet), however, the powerplant efficiency is affected.

(7) Whenever an adequate water supply is available, releases from Canyon Ferry Dam to the Missouri River will be maintained at rates required to sustain river flows equal to or greater than the minimum desired flow of 4,100 cfs below Holter Dam, to minimize impacts to downstream river fisheries and recreation activities. During below normal runoff years, it may be necessary to reduce the releases to less than 4,100 cfs but no lower than 2,800 cfs to fulfill contractual obligations with PPL-MT.

Following the above normal precipitation during June, precipitation in the Missouri River Basin above Canyon Ferry Lake dropped considerably during July through September. By August and September, the valley and mountain precipitation was less than 50 percent of average. As a result, the inflow into Canyon Ferry Lake dropped from about 143 percent of average during August to only 93 percent of average in September. With storage in Canyon Ferry Lake near average in September, releases to the Missouri River were maintained at about 4,600 cfs, allowing storage in Canyon Ferry Lake to slowly decline to 1,740,660 acre-feet at elevation 3791.28. This was 100 percent of average and about 25,805 acre-feet or 1.91 feet lower than at the end of water year 2010.

The most probable October-February natural inflows to Canyon Ferry Lake, without the effects of Clark Canyon and Hebgen Reservoirs, were estimated to be approximately 92 percent of average. The most probable March-September natural inflows were estimated to equal median percentile natural inflows or natural inflows that have historically been exceeded 50 percent of the time.

Under the minimum probable operating plan, the October-February natural inflows to Canyon Ferry Lake, without the effects of Clark Canyon and Hebgen Reservoirs, were estimated to be about 10 percent lower than the most probable natural inflows. The March-September natural inflows were estimated to equal lower decile natural inflows or natural inflows that have historically been exceeded 90 percent of the time.

Under the maximum probable operating plan, the October-February natural inflows to Canyon Ferry Lake, without the effects of Clark Canyon and Hebgen Reservoirs, were estimated to be about 15 percent higher than the most probable natural inflows. The maximum probable March-September natural inflows were estimated to equal 80 percentile natural inflows or natural inflows that have historically been exceeded 20 percent of the time.

Based on the storage level on October 1, 2011, Canyon Ferry Reservoir would be expected to fill to the top of the joint-use pool at elevation 3797 by the end of June only under the most probable and maximum probable runoff scenarios. However, under the minimum probable runoff condition, releases from Canyon Ferry Reservoir to the Missouri River downstream of Holter Dam would have to be decreased and maintained at about 3,700 cfs beginning in April through the remainder of the year to conserve storage and allow Canyon Ferry Reservoir to fill to elevation 3792.30, about 4.7 feet below the top of the joint-use pool. Under the most probable and maximum probable runoff conditions, releases to the Missouri River downstream of Holter Dam would be able to be maintained at or above 4,100 cfs all year. Under these two runoff scenarios, it is anticipated the river releases would be increased above 4,100 cfs or higher beginning in April, to control the rate of fill in Canyon Ferry during the spring snowmelt runoff season.

The average power generation produced at Canyon Ferry Powerplant during 1967-2011 is 385.4 million kilowatt-hours. Under the minimum probable runoff condition, power generation produced at Canyon Ferry Powerplant during 2012 would be about 48.9 million kilowatt-hours less than average. Under the most and maximum probable runoff conditions, power generation would be about 60.3 and 107.0 million kilowatt-hours more than average, respectively. No spills are expected during the routine scheduled maintenance outages shown on Table MTT19.

TABLE MTT13A

CANYON FERRY LAKE MONTHLY OPERATIONS
Based on October 1 2011 Probable Inflow Estimates

2012 Minimum Probable Plan

Canyon Ferry Reservoir — Initial Cont 1704.7 kaf, Elev 3791.28 ft; Maximum Cont 1993.0 kaf, Elev 3800.00 ft; Minimum Cont 445.5 kaf, Elev 3732.31 ft

Canyon Ferry Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	232.6	232.4	195.5	193.9	202.2	218.9	260.0	320.7	323.2	154.1	101.8	140.9	2576.2
Evaporation Loss	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HV Canal Diversions	kaf	0.0	0.0	0.0	0.0	0.0	4.0	11.0	22.0	17.0	21.0	21.0	12.0	108.0
HV Pump Turbines	kaf	0.0	0.0	0.0	0.0	0.0	4.9	13.4	25.8	18.9	23.3	25.1	15.6	127.0
Turbine Release	kaf	246.6	237.9	244.4	247.5	227.5	236.7	197.9	200.1	191.6	197.6	198.4	200.4	2626.6
Turbine Release	cfs	4011	3998	3975	4025	3955	3850	3326	3254	3220	3214	3227	3368	
Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
River Release	kaf	246.6	237.9	244.4	247.5	227.5	241.6	211.3	225.9	210.5	220.9	223.5	216.0	2753.6
River Release	cfs	4011	3998	3975	4025	3955	3929	3551	3674	3538	3593	3635	3630	
Min Release	cfs	4011	3998	3975	4025	3955	3929	3551	3674	3538	3593	3635	3630	
Total Dam Release	kaf	246.6	237.9	244.4	247.5	227.5	245.6	222.3	247.9	227.5	241.9	244.5	228.0	2861.6
Total Dam Release	cfs	4011	3998	3975	4025	3955	3994	3736	4032	3823	3934	3976	3832	
End-Month Content	kaf	1690.7	1685.2	1636.3	1582.7	1557.4	1530.7	1568.4	1641.2	1736.9	1649.1	1506.4	1419.3	
End-Month Elevation	ft	3790.9	3790.7	3789.1	3787.5	3786.6	3785.8	3787.0	3789.3	3792.3	3789.5	3785.0	3782.1	
Net Change	kaf	-14.0	-5.5	-48.9	-53.6	-25.3	-26.7	37.7	72.8	95.7	-87.8	-142.7	-87.1	-285.4

Canyon Ferry Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	cfs	4011	3998	3975	4025	3955	3850	3326	3254	3220	3214	3227	3368	
Tailwater Elev	ft	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	
Average Head	ft	140.3	140.0	139.1	137.5	136.2	135.4	135.6	137.3	140.0	140.1	136.5	132.8	
Average Power	mw	43.9	43.7	43.2	43.4	42.2	40.7	34.2	33.7	33.7	33.7	33.2	34.1	
Average Kwh/Af		133	132	131	130	129	128	124	125	127	127	124	123	128
Generation	gwh	32.691	31.464	32.133	32.275	29.364	30.273	24.638	25.043	24.286	25.058	24.664	24.581	336.470
End-Month Power Cap	mw	60	60	60	60	60	60	60	60	60	60	60	60	

Hauser	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Missouri Gain	kaf	4.0	4.8	7.1	4.5	7.2	8.6	7.8	0.4	1.9	1.9	0.9	1.8	50.9
End-Month Content	kaf	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	
Release	kaf	250.6	242.7	251.5	252.0	234.7	250.2	219.1	226.3	212.4	222.8	224.4	217.8	2804.5
Release	cfs	4076	4079	4090	4098	4080	4069	3682	3680	3570	3623	3650	3660	
Turbine Release	cfs	4076	4079	4090	4098	4080	4069	3682	3680	3570	3623	3650	3660	
Turbine Bypass	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Generation	gwh	10.553	10.220	10.590	10.610	9.882	10.535	9.226	9.528	8.945	9.380	9.450	9.170	118.089

Holter	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Missouri Gain	kaf	1.5	1.3	0.6	0.1	1.1	1.9	1.1	1.2	7.8	4.7	3.1	2.4	26.8
End-Month Content	kaf	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	
Release	kaf	252.1	244.0	252.1	252.1	235.8	252.1	220.2	227.5	220.2	227.5	227.5	220.2	2831.3
Release	cfs	4100	4101	4100	4100	4099	4100	3701	3700	3701	3700	3700	3701	
Min Release	cfs	4100	4100	4100	4100	4100	4100	3700	3700	3700	3700	3700	3700	
Turbine Release	cfs	4100	4101	4100	4100	4099	4100	3701	3700	3701	3700	3700	3701	
Turbine Bypass	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Generation	gwh	21.475	20.787	21.475	21.475	20.084	21.475	18.760	19.380	18.760	19.380	19.380	18.760	241.191

TABLE MTT13B

CANYON FERRY LAKE MONTHLY OPERATIONS
Based on October 1 2011 Probable Inflow Estimates

2012 Most Probable Plan

Canyon Ferry Reservoir — Initial Cont 1704.7 kaf, Elev 3791.28 ft; Maximum Cont 1993.0 kaf, Elev 3800.00 ft; Minimum Cont 445.5 kaf, Elev 3732.31 ft

Canyon Ferry Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	251.3	255.1	213.8	213.9	220.2	285.4	357.0	591.9	769.9	307.5	163.7	193.9	3823.6
Evaporation Loss	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HV Canal Diversions	kaf	0.0	0.0	0.0	0.0	0.0	4.0	11.0	22.0	17.0	21.0	21.0	12.0	108.0
HV Pump Turbines	kaf	0.0	0.0	0.0	0.0	0.0	5.3	14.6	26.9	18.1	20.9	21.5	12.8	120.1
Turbine Release	kaf	287.6	279.2	291.0	294.9	275.9	289.7	302.2	351.9	321.0	265.6	222.9	221.9	3403.8
Turbine Release	cfs	4677	4692	4733	4796	4797	4712	5079	5723	5394	4320	3625	3729	
Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	159.0	0.0	0.0	0.0	159.0
River Release	kaf	287.6	279.2	291.0	294.9	275.9	295.0	316.8	378.8	498.1	286.5	244.4	234.7	3682.9
River Release	cfs	4677	4692	4733	4796	4797	4798	5324	6161	8371	4659	3975	3944	
Min Release	cfs	3918	3936	4339	4328	3899	3880	3911	3959	3707	3981	3975	3944	
Total Dam Release	kaf	287.6	279.2	291.0	294.9	275.9	299.0	327.8	400.8	515.1	307.5	265.4	246.7	3790.9
Total Dam Release	cfs	4677	4692	4733	4796	4797	4863	5509	6518	8657	5001	4316	4146	
End-Month Content	kaf	1668.4	1644.3	1567.1	1486.1	1430.4	1416.8	1446.0	1637.1	1891.9	1891.9	1790.2	1737.4	
End-Month Elevation	ft	3790.2	3789.4	3787.0	3784.3	3782.5	3782.0	3783.0	3789.2	3797.0	3797.0	3793.9	3792.3	
Net Change	kaf	-36.3	-24.1	-77.2	-81.0	-55.7	-13.6	29.2	191.1	254.8	0.0	-101.7	-52.8	32.7

Canyon Ferry Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	cfs	4677	4692	4733	4796	4797	4712	5079	5723	5394	4320	3625	3729	
Tailwater Elev	ft	3650.9	3650.9	3650.9	3650.9	3650.9	3650.9	3651.0	3651.1	3651.4	3650.9	3650.8	3650.8	
Average Head	ft	139.8	138.9	137.3	134.8	132.5	131.3	131.5	135.0	141.7	146.1	144.7	142.3	
Average Power	mw	51.8	51.6	51.5	51.3	50.5	49.2	52.9	59.9	60.0	49.4	40.0	40.8	
Average Kwh/Af		134	133	132	129	127	126	126	127	135	138	134	133	131
Generation	gwh	38.517	37.166	38.338	38.175	35.155	36.612	38.059	44.528	43.200	36.739	29.760	29.405	445.654
End-Month Power Cap	mw	60	60	60	60	60	60	60	60	60	60	60	60	

Hauser	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Missouri Gain	kaf	9.1	8.4	8.8	9.0	9.3	10.2	9.0	5.4	13.1	1.3	3.3	5.2	92.1
End-Month Content	kaf	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	
Release	kaf	296.7	287.6	299.8	303.9	285.2	305.2	325.8	384.2	511.2	287.8	247.7	239.9	3775.0
Release	cfs	4825	4833	4876	4942	4958	4964	5475	6248	8591	4681	4028	4032	
Turbine Release	cfs	4740	4740	4740	4740	4740	4740	4740	4740	4740	4681	4028	4032	
Turbine Bypass	cfs	85	93	136	202	218	224	735	1508	3851	0	0	0	
Generation	gwh	12.272	11.877	12.272	12.272	11.481	12.272	11.877	12.272	11.877	12.120	10.429	10.103	141.124

Holter	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Missouri Gain	kaf	2.1	1.4	1.1	1.6	2.2	3.3	2.3	3.3	10.3	6.0	4.4	4.1	42.1
End-Month Content	kaf	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	
Release	kaf	298.8	289.0	300.9	305.5	287.4	308.5	328.1	387.5	521.5	293.8	252.1	244.0	3817.1
Release	cfs	4860	4857	4894	4968	4996	5017	5514	6302	8764	4778	4100	4101	
Min Release	cfs	4100	4100	4500	4500	4100	4100	4100	4100	4100	4100	4100	4100	
Turbine Release	cfs	4860	4857	4894	4968	4996	5017	5514	6302	7100	4778	4100	4101	
Turbine Bypass	cfs	0	0	0	0	0	0	0	0	1664	0	0	0	
Generation	gwh	25.456	24.619	25.634	26.021	24.480	26.278	27.949	33.008	35.988	25.026	21.475	20.787	316.721

TABLE MTT13C

CANYON FERRY LAKE MONTHLY OPERATIONS
Based on October 1 2011 Probable Inflow Estimates

2012 Maximum Probable Plan

Canyon Ferry Reservoir — Initial Cont 1704.7 kaf, Elev 3791.28 ft; Maximum Cont 1993.0 kaf, Elev 3800.00 ft; Minimum Cont 445.5 kaf, Elev 3732.31 ft

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	281.6	288.8	242.2	243.0	253.5	322.9	414.6	771.2	1025.6	482.4	214.5	233.1	4773.4
Evaporation Loss	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HV Canal Diversions	kaf	0.0	0.0	0.0	0.0	0.0	4.0	11.0	22.0	17.0	21.0	21.0	12.0	108.0
HV Pump Turbines	kaf	0.0	0.0	0.0	0.0	0.0	5.3	15.5	30.2	19.0	20.9	21.4	12.7	125.0
Turbine Release	kaf	271.6	324.5	335.4	335.3	313.7	330.1	374.9	382.7	328.6	322.2	255.9	257.3	3832.2
Turbine Release	cfs	4417	5453	5455	5453	5454	5369	6300	6224	5523	5240	4162	4324	
Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	126.6	163.5	245.3	118.3	0.0	0.0	653.7
River Release	kaf	271.6	324.5	335.4	335.3	313.7	335.4	517.0	576.4	592.9	461.4	277.3	270.0	4610.9
River Release	cfs	4417	5453	5455	5453	5454	5455	8688	9374	9964	7504	4510	4538	
Min Release	cfs	3828	3911	4315	4315	3842	3825	3850	3711	3284	3731	3807	3838	
Total Dam Release	kaf	271.6	324.5	335.4	335.3	313.7	339.4	528.0	598.4	609.9	482.4	298.3	282.0	4718.9
Total Dam Release	cfs	4417	5453	5455	5453	5454	5520	8873	9732	10250	7845	4851	4739	
End-Month Content	kaf	1714.7	1679.0	1585.8	1493.5	1433.3	1416.8	1303.4	1476.2	1891.9	1891.9	1808.1	1759.2	
End-Month Elevation	ft	3791.6	3790.5	3787.6	3784.6	3782.6	3782.0	3778.0	3784.0	3797.0	3797.0	3794.5	3793.0	
Net Change	kaf	10.0	-35.7	-93.2	-92.3	-60.2	-16.5	-113.4	172.8	415.7	0.0	-83.8	-48.9	54.5

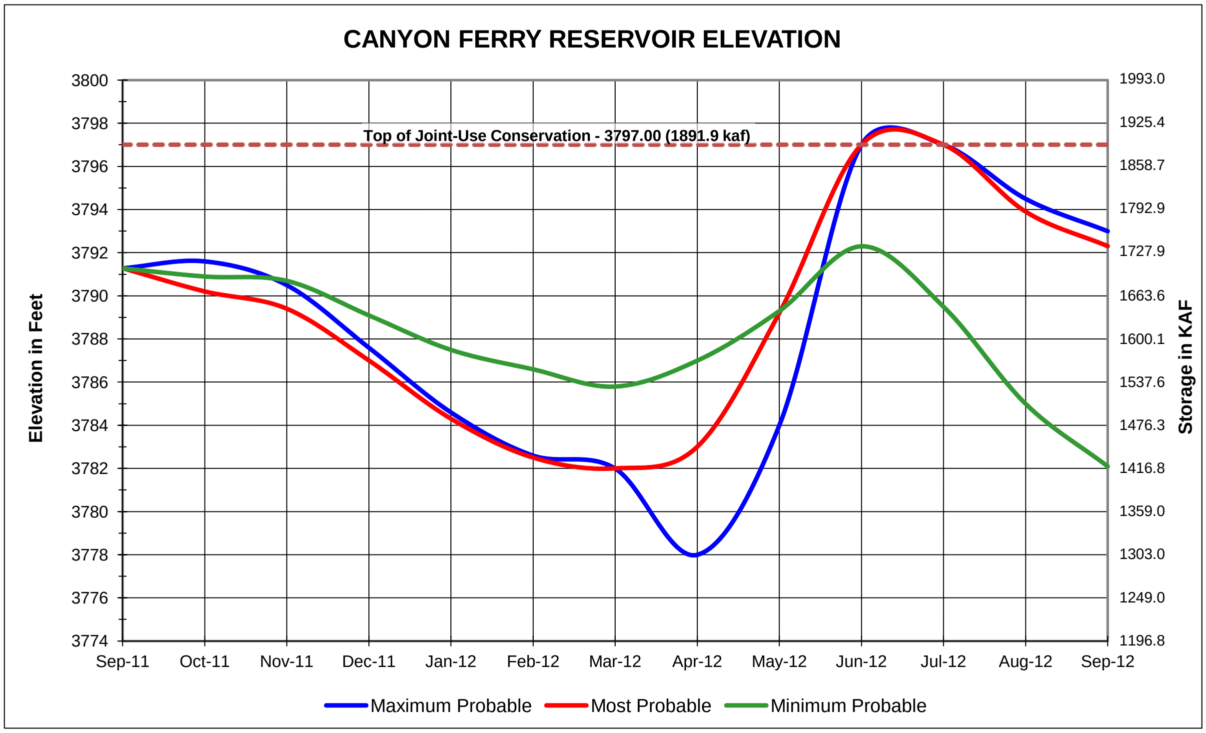
Canyon Ferry Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	cfs	4417	5453	5455	5453	5454	5369	6300	6224	5523	5240	4162	4324	
Tailwater Elev	ft	3650.9	3651.0	3651.0	3651.0	3651.0	3651.0	3651.4	3651.6	3651.7	3651.3	3650.9	3650.9	
Average Head	ft	140.5	140.0	138.0	135.1	132.6	131.3	128.6	129.5	138.9	145.7	144.8	142.8	
Average Power	mw	49.0	59.9	59.0	57.7	56.6	55.3	59.9	60.0	60.0	60.0	47.0	48.5	
Average Kwh/Af		134	133	131	128	126	125	115	117	131	139	137	136	128
Generation	gwh	36.441	43.092	43.903	42.936	39.394	41.158	43.092	44.640	43.200	44.640	34.998	34.934	492.428
End-Month Power Cap	mw	60	60	60	60	60	60	59	60	60	60	60	60	

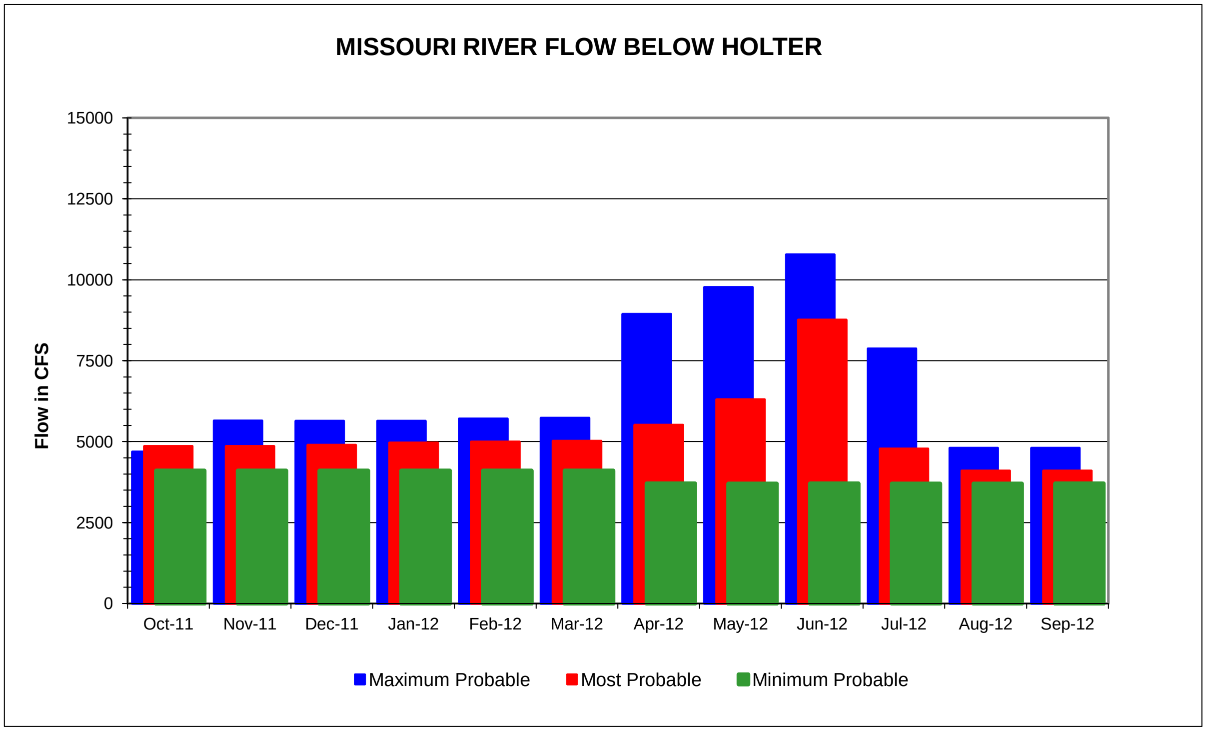
Hauser	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Missouri Gain	kaf	13.0	9.3	9.4	8.9	11.9	13.3	11.8	17.2	34.1	13.3	10.8	10.0	163.0
End-Month Content	kaf	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	
Release	kaf	284.6	333.8	344.8	344.2	325.6	348.7	528.8	593.6	627.0	474.7	288.1	280.0	4773.9
Release	cfs	4629	5610	5608	5598	5661	5671	8887	9654	10537	7720	4685	4706	
Turbine Release	cfs	4629	4740	4740	4740	4740	4740	4740	4740	4740	4740	4685	4706	
Turbine Bypass	cfs	0	870	868	858	921	931	4147	4914	5797	2980	0	0	
Generation	gwh	11.985	11.877	12.272	12.272	11.481	12.272	11.877	12.272	11.877	12.272	12.130	11.791	144.378

Holter	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Missouri Gain	kaf	3.7	2.0	2.0	2.5	2.9	3.6	3.1	6.7	14.5	9.4	7.2	5.6	63.2
End-Month Content	kaf	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	81.9	
Release	kaf	288.3	335.8	346.8	346.7	328.5	352.3	531.9	600.3	641.5	484.1	295.3	285.6	4837.1
Release	cfs	4689	5643	5640	5639	5711	5730	8939	9763	10781	7873	4803	4800	
Min Release	cfs	4100	4100	4500	4500	4100	4100	4100	4100	4100	4100	4100	4100	
Turbine Release	cfs	4689	5643	5640	5639	5711	5730	7100	7100	7100	7100	4803	4800	
Turbine Bypass	cfs	0	0	0	0	0	0	1839	2663	3681	773	0	0	
Generation	gwh	24.560	28.603	29.541	29.536	27.983	30.012	35.988	37.188	35.988	37.188	25.157	24.330	366.074

FIGURE MTG14

CANYON FERRY RESERVOIR





WATER YEAR 2012

GIBSON RESERVOIR

Three operating plans were prepared for 2012 to show the operations of Gibson Reservoir which could occur under various conditions. These plans are shown in Table MTT14A-C and Figure MTG15. The plans are presented only to show the probable limits of operations; therefore, actual operations may vary widely from these plans.

The primary objective of operations at Gibson Reservoir is to provide irrigation water to the Sun River Project. Gibson Reservoir is operated under the following criteria and limitations:

(1) Beginning near the first of January and at least monthly thereafter through June, forecasts are made of the estimated spring inflow from snow cover and precipitation data. When these forecasts become available, the Facility Operation and Maintenance Division provides assistance to Greenfields Irrigation District to provide incidental flood control and prevent storage content in Gibson Reservoir from exceeding elevation 4724.0 until the peak of the spring runoff has passed and has begun to recede.

(2) The spillway crest elevation is 4712.0 feet (81,255 acre-feet). The spillway gates will remain open until after the peak inflow has occurred. The remaining 12 feet of storage shall be filled with recession inflows. This will normally occur during mid to late June or early July.

(3) Once Gibson Reservoir has filled or reached its maximum level during spring runoff (normally late June or early July), releases are set to maintain the reservoir at or below elevation 4724.0.

(4) After the spring runoff is over, releases during the remainder of the irrigation season from July through mid-October are adjusted as necessary to meet the irrigation demands of the Sun River Project.

(5) When irrigation demands on the Sun River Project place heavy demands on storage in Gibson Reservoir, the reservoir should not be drafted lower than elevation 4609.0 feet (5,000 acre-feet) to prevent sediment from being flushed through the reservoir in an effort to protect the water quality of the Sun River downstream of the dam.

(6) During the non-irrigation season, Gibson Reservoir should be maintained below elevation of 4712.0 feet (81,255 acre-feet) to provide incidental flood control. During most years, Gibson Reservoir is generally maintained below elevation 4702.5 (70,000 acre-feet). When normal or above normal inflow is forecast, the end-of-April target storage content is 55,000 acre-feet. When below normal inflow is forecast, the end-of-April target storage content can be increased but set no higher than 70,000 acre-feet.

(7) Whenever an adequate water supply is available, releases from Gibson Reservoir will be maintained at rates to sustain flows in the Sun River below Sun River Diversion Dam at 100 cfs or higher and in the river below the Fort Shaw Diversion Dam at 50 cfs or higher.

This is normally required to achieve the desired end-of-April content and minimize impacts to downstream river fisheries and recreation activities. During below normal runoff years, it may be necessary to reduce the releases to as low as 50 cfs in the Sun River below the Sun River Diversion Dam, the absolute minimum flow required to protect the river fishery.

(8) Releases during July-September are made as necessary to meet irrigation requirements.

Inflow into Gibson Reservoir during both August and September averaged 139, and 105 percent of average. The precipitation and temperatures stayed cool during late spring which caused a delayed snow melt. The total inflow for Gibson Reservoir during 2011 was 808,300 acre-feet, 142 percent of average. By the end of water year 2011, storage in Gibson Reservoir was drafted to 12,100 acre-feet at elevation 4626.95. This was 43 percent of normal for this time of year.

The most probable October-December inflows to Gibson Reservoir were estimated to equal 50 percentile flows, or flows that would be exceeded 50 percent of the time. January through April flows are estimated to be 30 percentile flows, or flows that would be exceeded 70 percent of the time, and May through September inflows to Gibson Reservoir were estimated to transition to 74 percentile inflows or inflows that have historically been exceeded 26 percent of the time by June and then back to 50 percentile flows by the end of the water year.

The minimum probable October-April inflows to Gibson Reservoir were estimated to equal 25 percentile inflows or inflows that have historically been exceeded 75 percent of the time. While the May-September inflows were estimated to transition to 50 percentile flows or flows that would be exceeded 50 percent of the time by June and then back to 30 percentile flows or flows that would be exceeded 70 percent of the time by August.

The maximum probable October-December inflows to Gibson Reservoir were estimated to equal 74 percentile flows, or flows that would be exceeded 26 percent of the time. January through April inflows to Gibson Reservoir were estimated to equal 57 percentile inflows or inflows that have historically been exceeded 43 percent of the time. The inflows during the May through September timeframe were estimated to transition to 84 percent or flows that would be exceeded 16 percent of the time.

With storage in Gibson Reservoir at 12,100 acre-feet or 43 percent of average on September 30, Gibson Reservoir is expected to fill to the top of the conservation pool at elevation 4724 (96,477 acre-feet) under all three runoff scenarios. Based upon the storage content of Gibson Reservoir on September 30, 2011, a winter release of approximately 150-200 cfs to the Sun River can be maintained to conserve storage for the 2011 irrigation season, as well as to provide a good winter fishery flow. These flow rates will vary as runoff and snowpack conditions change.

TABLE MTT14A

GIBSON RESERVOIR MONTHLY OPERATIONS
Based on October 2011 Inflow Estimates

2012 Minimum Probable Runoff

Gibson Reservoir — Initial Cont 12.1 kaf, Elev 4626.95 ft; Maximum Cont 96.5 kaf, Elev 4724.02 ft; Minimum Cont 5.0 kaf, Elev 4608.95 ft

Gibson Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	14.4	13.4	11.7	11.2	9.8	12.2	30.5	140.6	177.4	60.4	20.8	15.6	518.0
Spillway Rels	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Total Release	kaf	9.6	9.4	9.9	10.0	9.4	9.9	21.2	96.5	160.9	100.2	51.2	36.9	525.1
Total Release	cfs	156	158	161	163	163	161	356	1569	2704	1630	833	620	
End-Month Content	kaf	16.9	20.9	22.7	23.9	24.3	26.6	35.9	80.0	96.5	56.7	26.3	5.0	
End-Month Elevation	ft	4636.47	4643.69	4646.79	4648.80	4649.47	4653.16	4666.61	4710.98	4724.02	4690.03	4652.69	4608.95	
End-Month Area	acre	533.7	573.5	589.8	600.3	603.8	636.1	749.8	1224.8	1296.2	1009.4	632.3	297.4	
Net Change Content	kaf	4.8	4.0	1.8	1.2	0.4	2.3	9.3	44.1	16.5	-39.8	-30.4	-21.3	-7.1

Sun River Div Dam	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Gain Below Gibson	cfs	20	17	15	13	12	15	40	166	187	62	24	20	
Rels to WFC	cfs	0	0	0	0	0	0	44	36	0	0	0	0	
Rels to PSC	cfs	0	0	0	0	0	0	178	1057	1400	1334	441	466	
Total Diversion	kaf	0.0	0.0	0.0	0.0	0.0	0.0	13.2	67.2	83.3	82.0	27.1	27.7	300.5
Total Diversion	cfs	0	0	0	0	0	0	222	1093	1400	1334	441	466	
Flow Over Div Dam	kaf	10.8	10.4	10.8	10.8	10.1	10.8	10.4	39.5	88.7	22.0	25.6	10.4	260.3
Flow Over Div Dam	cfs	176	175	176	176	176	176	175	642	1491	358	416	175	
Min River Rels	kaf	10.8	10.4	10.8	10.8	10.1	10.8	10.4	10.8	10.4	10.8	10.8	10.4	127.3
Min River Rels	cfs	175	175	175	175	175	175	175	175	175	175	175	175	

Willow Crk Operations — Initial Cont 27.7 kaf, Elev 4139.10 ft; Maximum Cont 31.9 kaf, Elev 4142.04 ft; Minimum Cont 0.1 kaf, Elev 4093.42 ft

Willow Crk Operations	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Native Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2
Total Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.1	2.3	1.9	0.0	0.0	0.0	0.0	4.3
WCR Dam Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.9	2.3	4.3
End-Month Content	kaf	27.7	27.7	27.7	27.7	27.7	27.7	30.0	31.9	31.9	31.9	30.0	27.7	
End-Month Elevation	ft	4139.10	4139.10	4139.10	4139.10	4139.10	4139.10	4140.72	4142.04	4142.04	4142.04	4140.72	4139.10	
Net Change Content	kaf	0.0	0.0	0.0	0.0	0.0	0.0	2.3	1.9	0.0	0.0	-1.9	-2.3	-0.0

Pishkun Operations — Initial Cont 39.0 kaf, Elev 4364.73 ft; Maximum Cont 46.8 kaf, Elev 4370.07 ft; Minimum Cont 16.0 kaf, Elev 4341.99 ft

Pishkun Operations	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Rels to PSC	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.6	65.0	83.3	82.0	27.1	27.7	295.7
Total Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	52.0	68.3	69.7	23.0	23.5	245.5
PSH Dam Rels	kaf	2.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	75.0	30.0	25.0	253.0
End-Month Content	kaf	37.0	37.0	37.0	37.0	37.0	37.0	37.0	42.0	45.3	40.0	33.0	31.5	
End-Month Elevation	ft	4363.28	4363.28	4363.28	4363.28	4363.28	4363.28	4363.28	4366.83	4369.08	4365.44	4360.21	4358.98	
Net Change Content	kaf	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	3.3	-5.3	-7.0	-1.5	-7.5

Greenfields Irrig	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
GID Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	75.0	30.0	25.0	251.0
GID Delivery	kaf	2.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	75.0	30.0	25.0	253.0

River Blw Div Dam	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow Over Div Dam	cfs	176	175	176	176	176	176	175	642	1491	358	416	175	
PSC Return Flow	cfs	0	0	0	0	0	0	22	169	202	171	60	71	
WCR Dam Rels	cfs	0	0	0	0	0	2	0	0	0	0	31	39	
Sr Demand Above	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	12.9	13.3	13.3	2.0	50.2
Sr Demand Below	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.4	5.5	5.5	2.0	24.9
Flow @ Ft.Shaw Div	cfs	158	183	189	190	191	202	245	709	1492	229	213	227	
Ft Shaw Demand	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.7	8.0	9.0	11.0	10.0	8.0	47.7
Ft Shaw Tot Deliv	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.7	8.0	9.0	11.0	10.0	8.0	47.7
Flow blw Ft. Shaw	cfs	141	183	189	190	191	202	234	579	1341	50	50	92	

TABLE MTT14B

GIBSON RESERVOIR MONTHLY OPERATIONS
Based on October 2011 Inflow Estimates

2012 Most Probable Runoff

Gibson Reservoir — Initial Cont 12.1 kaf, Elev 4626.95 ft; Maximum Cont 96.5 kaf, Elev 4724.02 ft; Minimum Cont 5.0 kaf, Elev 4608.95 ft

Gibson Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	18.5	17.4	15.7	11.6	10.2	12.7	34.6	181.7	258.0	87.2	31.5	20.2	699.3
Spillway Rels	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Total Release	kaf	9.5	9.3	9.8	9.9	9.3	9.9	22.2	153.6	242.5	102.2	66.2	41.8	686.2
Total Release	cfs	155	156	159	161	162	161	373	2498	4075	1662	1077	702	
End-Month Content	kaf	21.1	29.2	35.1	36.8	37.7	40.5	52.9	81.0	96.5	81.5	46.8	25.2	
End-Month Elevation	ft	4644.04	4657.14	4665.54	4667.80	4668.98	4672.50	4686.21	4711.79	4724.02	4712.20	4679.76	4650.93	
End-Month Area	acre	575.4	668.4	738.9	761.9	773.9	818.7	977.6	1230.9	1296.2	1233.9	913.5	617.9	
Net Change Content	kaf	9.0	8.1	5.9	1.7	0.9	2.8	12.4	28.1	15.5	-15.0	-34.7	-21.6	13.1

Sun River Div Dam	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Gain Below Gibson	cfs	21	18	16	15	14	15	44	185	235	78	29	22	
Rels to WFC	cfs	0	0	0	0	0	0	44	39	0	0	0	59	
Rels to PSC	cfs	0	0	0	0	0	0	198	1132	1333	1381	768	415	
Total Diversion	kaf	0.0	0.0	0.0	0.0	0.0	0.0	14.4	72.0	79.3	84.9	47.2	28.2	326.0
Total Diversion	cfs	0	0	0	0	0	0	242	1171	1333	1381	768	474	
Flow Over Div Dam	kaf	10.8	10.4	10.8	10.8	10.1	10.8	10.4	93.0	177.2	22.1	20.8	14.9	402.1
Flow Over Div Dam	cfs	176	175	176	176	176	176	175	1513	2978	359	338	250	
Min River Rels	kaf	10.8	10.4	10.8	10.8	10.1	10.8	10.4	10.8	10.4	3.1	3.1	14.9	116.4
Min River Rels	cfs	175	175	175	175	175	175	175	175	175	50	50	250	

Willow Crk Operations — Initial Cont 27.7 kaf, Elev 4139.10 ft; Maximum Cont 31.9 kaf, Elev 4142.04 ft; Minimum Cont 0.1 kaf, Elev 4093.42 ft

Willow Crk Operations	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Native Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2
Total Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.1	2.3	2.0	0.0	0.0	0.0	3.0	7.4
WCR Dam Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	4.0	0.0	4.1
End-Month Content	kaf	27.7	27.7	27.7	27.7	27.7	27.7	30.0	32.0	32.0	32.0	28.0	31.0	
End-Month Elevation	ft	4139.10	4139.10	4139.10	4139.10	4139.10	4139.10	4140.72	4142.10	4142.10	4142.10	4139.31	4141.42	
Net Change Content	kaf	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.0	0.0	0.0	-4.0	3.0	3.3

Pishkun Operations — Initial Cont 39.0 kaf, Elev 4364.73 ft; Maximum Cont 46.8 kaf, Elev 4370.07 ft; Minimum Cont 16.0 kaf, Elev 4341.99 ft

Pishkun Operations	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Rels to PSC	kaf	0.0	0.0	0.0	0.0	0.0	0.0	11.8	69.6	79.3	84.9	47.2	24.7	317.5
Total Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	55.7	65.0	72.2	40.1	21.0	264.0
PSH Dam Rels	kaf	2.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	80.0	40.0	25.0	268.0
End-Month Content	kaf	37.0	37.0	37.0	37.0	37.0	37.0	38.0	46.7	46.7	38.9	39.0	35.0	
End-Month Elevation	ft	4363.28	4363.28	4363.28	4363.28	4363.28	4363.28	4364.01	4370.00	4370.00	4364.65	4364.73	4361.78	
Net Change Content	kaf	-2.0	0.0	0.0	0.0	0.0	0.0	1.0	8.7	0.0	-7.8	0.1	-4.0	-4.0

Greenfields Irrig	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
GID Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	80.0	40.0	25.0	266.0
GID Delivery	kaf	2.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	80.0	40.0	25.0	268.0

River Blw Div Dam	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow Over Div Dam	cfs	176	175	176	176	176	176	175	1513	2978	359	338	250	
PSC Return Flow	cfs	0	0	0	0	0	0	24	181	192	176	104	62	
WCR Dam Rels	cfs	0	0	0	0	0	2	0	0	0	0	65	0	
Sr Demand Above	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	12.9	13.3	13.3	2.0	50.2
Sr Demand Below	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.4	5.5	5.5	2.0	24.9
Flow @ Ft.Shaw Div	cfs	158	183	189	190	191	202	247	1591	2970	236	213	255	
Ft Shaw Demand	kaf	5.0	0.0	0.0	0.0	0.0	0.0	1.0	8.5	8.5	11.4	10.0	12.0	56.4
Ft Shaw Tot Deliv	kaf	5.0	0.0	0.0	0.0	0.0	0.0	1.0	8.5	8.5	11.4	10.0	12.0	56.4
Flow blw Ft. Shaw	cfs	76	183	189	190	191	202	230	1452	2827	50	50	54	

TABLE MTT14C

GIBSON RESERVOIR MONTHLY OPERATIONS
Based on October 2011 Inflow Estimates

2012 Maximum Probable Runoff

Gibson Reservoir — Initial Cont 12.1 kaf, Elev 4626.95 ft; Maximum Cont 96.5 kaf, Elev 4724.02 ft; Minimum Cont 5.0 kaf, Elev 4608.95 ft

Gibson Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	21.9	19.9	18.3	13.8	12.2	15.0	41.2	202.0	290.9	98.0	34.0	31.5	798.7
Spillway Rels	cfs	0	0	0	0	0	0	0	20	0	0	0	0	
Total Release	kaf	10.7	10.4	10.7	10.7	10.0	10.7	31.2	179.8	276.6	108.2	91.4	40.3	790.7
Total Release	cfs	174	175	174	174	174	174	524	2924	4648	1760	1486	677	
End-Month Content	kaf	23.3	32.8	40.4	43.5	45.7	50.0	60.0	82.2	96.5	86.3	28.9	20.1	
End-Month Elevation	ft	4647.80	4662.36	4672.38	4676.06	4678.55	4683.20	4693.26	4712.76	4724.02	4716.04	4656.69	4642.29	
End-Month Area	acre	595.1	711.3	817.0	866.6	898.1	949.2	1035.0	1238.2	1296.2	1260.3	664.8	566.2	
Net Change Content	kaf	11.2	9.5	7.6	3.1	2.2	4.3	10.0	22.2	14.3	-10.2	-57.4	-8.8	8.0

Sun River Div Dam	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Gain Below Gibson	cfs	23	22	20	16	14	16	47	208	299	99	34	24	
Rels to WFC	cfs	0	0	0	0	0	0	61	18	0	0	0	0	
Rels to PSC	cfs	0	0	0	0	0	0	237	1016	1360	1360	1121	301	
Total Diversion	kaf	0.0	0.0	0.0	0.0	0.0	0.0	17.7	63.6	80.9	83.6	68.9	17.9	332.6
Total Diversion	cfs	0	0	0	0	0	0	297	1034	1360	1360	1121	301	
Flow Over Div Dam	kaf	12.1	11.7	11.9	11.7	10.8	11.7	16.3	129.0	213.5	30.7	24.6	23.8	507.8
Flow Over Div Dam	cfs	197	197	194	190	188	190	274	2098	3588	499	400	400	
Min River Rels	kaf	10.8	10.4	10.8	10.8	10.1	10.8	14.9	49.2	47.6	30.7	24.6	23.8	254.5
Min River Rels	cfs	175	175	175	175	175	175	250	800	800	500	400	400	

Willow Crk Operations — Initial Cont 27.7 kaf, Elev 4139.10 ft; Maximum Cont 31.9 kaf, Elev 4142.04 ft; Minimum Cont 0.1 kaf, Elev 4093.42 ft

Willow Crk Operations	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Native Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2
Total Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.1	3.2	0.9	0.0	0.0	0.0	0.0	4.2
WCR Dam Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.0	1.9
End-Month Content	kaf	27.7	27.7	27.7	27.7	27.7	27.8	31.0	31.9	31.9	31.9	31.0	30.0	
End-Month Elevation	ft	4139.10	4139.10	4139.10	4139.10	4139.10	4139.17	4141.42	4142.04	4142.04	4142.04	4141.42	4140.72	
Net Change Content	kaf	0.0	0.0	0.0	0.0	0.0	0.1	3.2	0.9	0.0	0.0	-0.9	-1.0	2.3

Pishkun Operations — Initial Cont 39.0 kaf, Elev 4364.73 ft; Maximum Cont 46.8 kaf, Elev 4370.07 ft; Minimum Cont 16.0 kaf, Elev 4341.99 ft

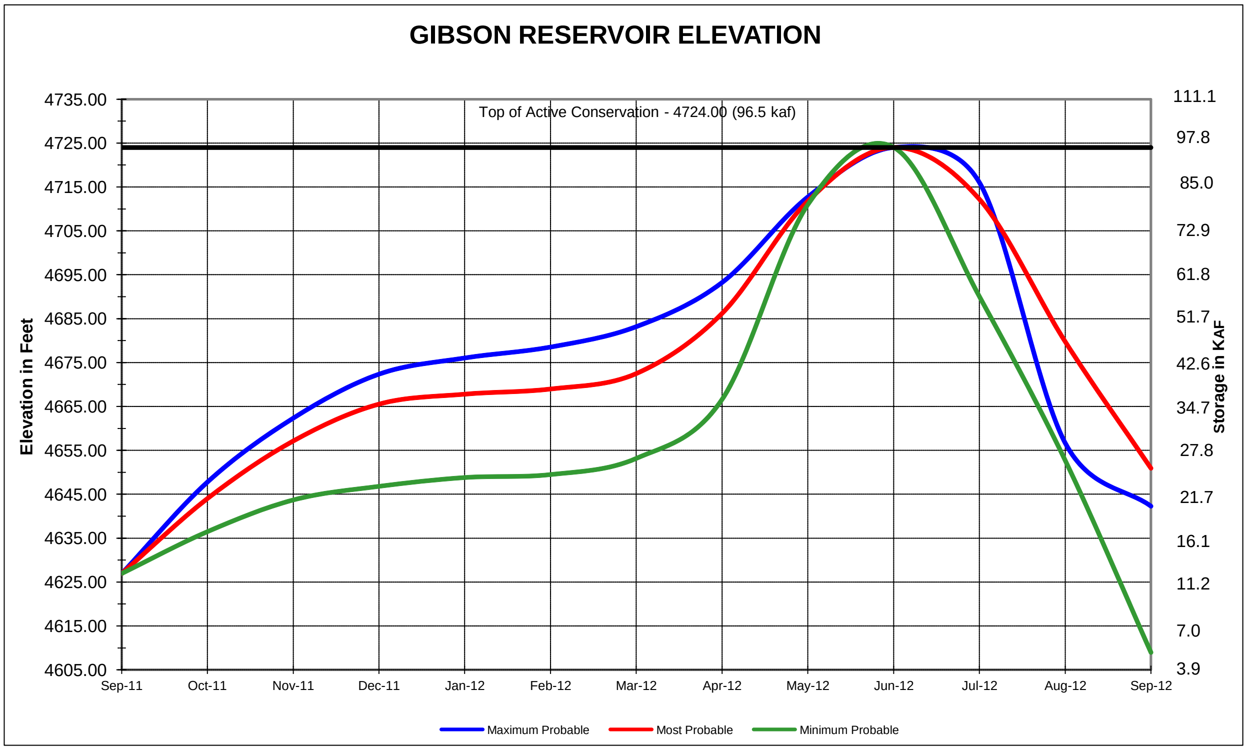
Pishkun Operations	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Rels to PSC	kaf	0.0	0.0	0.0	0.0	0.0	0.0	14.1	62.5	80.9	83.6	68.9	17.9	327.9
Total Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	12.0	50.0	66.3	71.1	58.6	15.2	273.2
PSH Dam Rels	kaf	2.0	0.0	0.0	0.0	0.0	0.0	12.0	45.0	65.0	85.0	48.0	25.0	282.0
End-Month Content	kaf	37.0	37.0	37.0	37.0	37.0	37.0	37.0	42.0	43.3	29.4	40.0	30.2	
End-Month Elevation	ft	4363.28	4363.28	4363.28	4363.28	4363.28	4363.28	4363.28	4366.83	4367.73	4357.14	4365.44	4357.86	
Net Change Content	kaf	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	1.3	-13.9	10.6	-9.8	-8.8

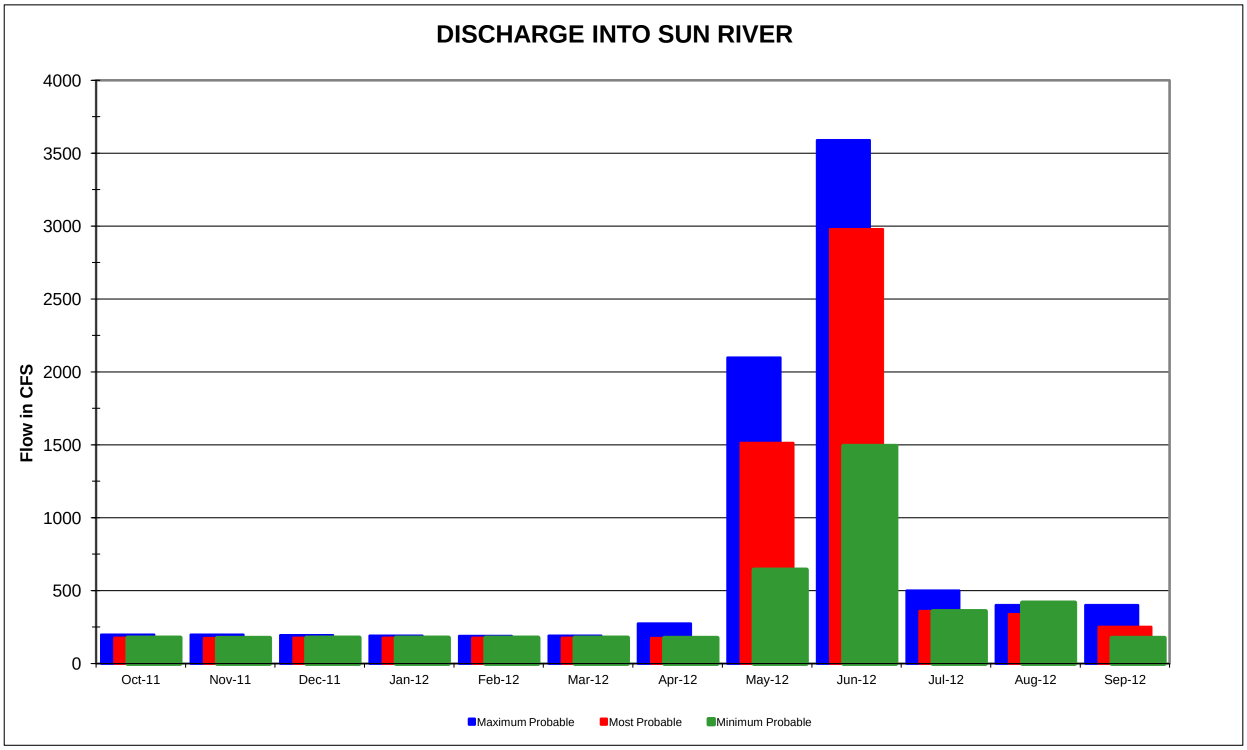
Greenfields Irrig	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
GID Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	12.0	45.0	65.0	85.0	48.0	25.0	280.0
GID Delivery	kaf	2.0	0.0	0.0	0.0	0.0	0.0	12.0	45.0	65.0	85.0	48.0	25.0	282.0

River Blw Div Dam	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow Over Div Dam	cfs	197	197	194	190	188	190	274	2098	3588	499	400	400	
PSC Return Flow	cfs	0	0	0	0	0	0	29	163	197	172	151	45	
WCR Dam Rels	cfs	0	0	0	0	0	0	0	0	0	0	15	17	
Sr Demand Above	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	12.9	13.3	13.3	2.0	50.2
Sr Demand Below	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.4	5.5	5.5	2.0	24.9
Flow @ Ft.Shaw Div	cfs	179	205	207	205	203	215	351	2158	3585	372	272	405	
Ft Shaw Demand	kaf	5.0	0.0	0.0	0.0	0.0	0.0	1.0	10.0	12.0	12.0	10.0	8.0	58.0
Ft Shaw Tot Deliv	kaf	5.0	0.0	0.0	0.0	0.0	0.0	1.0	10.0	12.0	12.0	10.0	8.0	58.0
Flow blw Ft. Shaw	cfs	98	205	207	205	203	215	334	1996	3383	177	109	271	

FIGURE MTG15

GIBSON RESERVOIR





WATER YEAR 2012

LAKE ELWELL (TIBER DAM)

Three operating plans were prepared for 2012 to show the operations of Lake Elwell which could occur under various runoff conditions. These operations for the three runoff conditions are shown in Table MTT15 and Figure MTG16. These plans are presented only to show the probable limits of operations; therefore, actual conditions and operations could vary widely from the plans.

In 2002, Reclamation surveyed Lake Elwell 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 October of 1957. The 2002 survey determined that Lake Elwell has a storage capacity of 925,649 acre-feet and a surface area of 18,275 acres at a reservoir elevation of 2993.00. Since closure in 1957, the reservoir has accumulated a sediment volume of 42,179 acre-feet below elevation 2993.00. This volume represents a 4.4 percent change in total capacity at this elevation. The revised area-capacity table was put into effect on October 1, 2005, reflecting the new storage levels.

The objectives of operations at Lake Elwell are to provide flood control in cooperation with the Corps of Engineers, to provide fish and wildlife enhancement to the area, and supply water for irrigation and municipal uses. The reservoir is operated under the following criteria and limitations:

1. Whenever an adequate water supply is available, Tiber Dam and Reservoir is operated to maintain a minimum flow of 500 cfs or more in the Marias River immediately below Tiber Dam to provide a healthy river fishery. When an adequate water supply is not available to maintain a release of 500 cfs, releases will be reduced to 380 cfs during the irrigation season and to 320 cfs during the non-irrigation season. During periods of extreme extended drought it may be necessary to reduce releases to as low as 250 cfs during the non-irrigation season.

2. During unusually low runoff years, the reservoir may not fill in order to maintain the desired or minimum flow levels.

3. Based on monthly seasonal water supply forecasts prepared during January through June, releases are adjusted to allow storage to fill to elevation 2993 (925,649 acre-feet) (top of joint-use pool) by the end of June.

4. To minimize lowland flooding, maximum releases are currently maintained below 5,500 cfs. The maximum safe channel capacity of the Marias River is currently established as 10,000 cfs.

5. After storage has peaked, usually in June, releases are adjusted to evacuate storage to an elevation between 2976-2980 (667,213-719,885 acre-feet) by March 1. This elevation is dependent upon the monthly water supply forecasts in order to provide adequate space to control the next season's snowmelt runoff.

6. Maintain Tiber Reservoir at or above elevation 2982 (747,953 acre-feet) during Memorial Day Weekend in late May through Labor Day Weekend in early September, to protect flat water recreation interests.

7. During October to early November, set a release that can be reasonably maintained through the fall and winter. A stable flow or one that is gradually increased during the winter is needed to protect the spawning habitat for brown trout. This flow rate should be low enough to minimize the possibility that flows may need to be reduced as a result of below normal winter mountain snowpack and runoff projections.

8. If conditions allow, attempt to maintain stable releases to Marias River during April 1 through May 15 to protect goose nesting.

9. If conditions allow, avoid dropping the reservoir level during April and May, to protect fish spawning in the reservoir.

10. In close coordination with MFWP, whenever an adequate water supply is available and conditions allow, releases will be scheduled to assimilate a natural spring runoff hydrograph which normally occurs in late May or early June.

11. All flood control operations are closely coordinated with the Corps. If the Corps advises that replacement storage is desirable during the maximum probable runoff, releases during the spring runoff period from March through June will be maintained at about 500 cfs, allowing storage to exceed elevation 2993 feet (925,649 acre-feet), the top of the joint use pool.

12. March-June releases are based on forecasted inflows with the objective of filling Lake Elwell to an elevation of 2993 feet (925,649 acre-feet) by the end of June. However, in some years, March-June releases may be based on filling the reservoir to as high as an elevation of 3008 feet (1,227,174 acre-feet) by the end of June, to provide replacement storage and assist the Corps with the operations of their main stem reservoir system.

13. Whenever possible, attempts are made to maintain water temperatures in the Marias River between 55°F and 60°F during June 1 through September 15.

14. To prevent ice jam flooding from occurring, the maximum desired winter release is maintained no higher than 700 cfs.

15. Under normal operations, river releases of up to about 700 cfs will generally be released through the 7.5 MW FERC powerplant. If releases greater than 700 cfs are required, flows in excess of the powerplant capacity will be released through a combination of the river outlet works regulating gate, through the auxiliary outlet works or through the spillway gates.

By the end of water year 2011, both the total annual valley precipitation and the total annual mountain precipitation in the Marias River Basin was near average. The total annual runoff into Lake Elwell during 2011 was 989,969 acre-feet, 174 percent of average and the second highest annual inflow ever recorded. At the beginning of water year 2011, the storage content in Lake Elwell was 990,144 acre-feet at elevation 2996.45 feet, approximately 126 percent of normal and 3.45 feet above the top of the joint use pool.

The most probable October inflows to Lake Elwell were estimated to equal 90 percentile inflows or inflows that are historically exceeded 10 percent of the time. The most probable November inflows to Lake Elwell were estimated to equal 75 percentile inflows or inflows that are historically exceeded 25 percent of the time. Most probable December-September inflows were estimated to equal median inflows or inflows that are historically exceeded 50 percent of the time.

The minimum probable October-November inflows to Lake Elwell were estimated to equal inflows that are 25 percent less than the most probable inflows. The minimum probable December-September inflows to Lake Elwell were estimated to equal 10 percentile inflows or inflows that are historically exceeded 90 percent of the time.

The maximum probable October-November inflows to Lake Elwell were estimated to equal inflows that are 25 percent more than the most probable inflows. The maximum probable December-September inflows were estimated to equal 90 percentile inflows or inflows that are historically exceeded 10 percent of the time.

Lake Elwell is not expected to fill during 2012 under the minimum probable runoff conditions, but would fill under the most probable and maximum probable runoff conditions. Water levels under the minimum probable runoff conditions are expected to peak in late June or early July at approximately 5.5 feet below the top of the joint use pool. Under the most probable and maximum probable runoff conditions, the water level in Lake Elwell is expected to peak in late June or early July at or near the top of the joint use pool. A minimum river release of 500 cfs would be maintained through the winter under the minimum probable runoff conditions; a minimum river release of 650 cfs would be maintained through the winter under the most probable runoff conditions; and a minimum river release of 700 cfs would be maintained through the winter under the maximum probable runoff conditions.

TABLE MTT15

TIBER RESERVOIR OPERATING PLAN
Based on October 1 2011 Inflow Estimates

2012 MINIMUM Probable Inflow Forecast

Tiber Reservoir — Initial Cont 990.1 kaf, Elev 2996.45 ft; Maximum Cont 1356.5 kaf, Elev 3013.69 ft; Minimum Cont 260.7 kaf, Elev 2932.27 ft

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	23.9	20.0	9.3	11.1	13.4	21.5	34.8	78.3	68.6	18.6	4.9	4.9	309.3
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dam Release	kaf	138.3	89.3	30.7	30.7	28.8	30.7	29.8	30.7	29.8	30.7	30.7	29.8	530.0
Dam Release	cfs	2249	1501	499	499	501	499	501	499	501	499	499	501	
End-Month Content	kaf	875.7	806.4	785.0	765.4	750.0	740.8	745.8	793.4	832.2	820.1	794.3	769.4	
End-Month Elevation	ft	2990.20	2985.96	2984.54	2983.21	2982.14	2981.50	2981.85	2985.11	2987.60	2986.84	2985.17	2983.48	
Net Change Content	kaf	-114.4	-69.3	-21.4	-19.6	-15.4	-9.2	5.0	47.6	38.8	-12.1	-25.8	-24.9	-220.7

2012 MOST Probable Inflow Forecast

Tiber Reservoir — Initial Cont 990.1 kaf, Elev 2996.45 ft; Maximum Cont 1356.5 kaf, Elev 3013.69 ft; Minimum Cont 260.7 kaf, Elev 2932.27 ft

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	31.9	26.7	14.3	18.4	20.1	49.5	60.3	163.5	142.7	49.7	17.5	14.3	608.9
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dam Release	kaf	138.3	104.1	40.2	40.2	37.7	40.3	39.0	61.8	90.3	85.1	42.6	41.3	760.9
Dam Release	cfs	2249	1749	654	654	655	655	655	1005	1518	1384	693	694	
End-Month Content	kaf	883.7	806.3	780.4	758.6	741.0	750.2	771.5	873.2	925.6	890.2	865.1	838.1	
End-Month Elevation	ft	2990.66	2985.96	2984.23	2982.74	2981.51	2982.16	2983.63	2990.06	2993.00	2991.03	2989.59	2987.96	
Net Change Content	kaf	-106.4	-77.4	-25.9	-21.8	-17.6	9.2	21.3	101.7	52.4	-35.4	-25.1	-27.0	-152.0

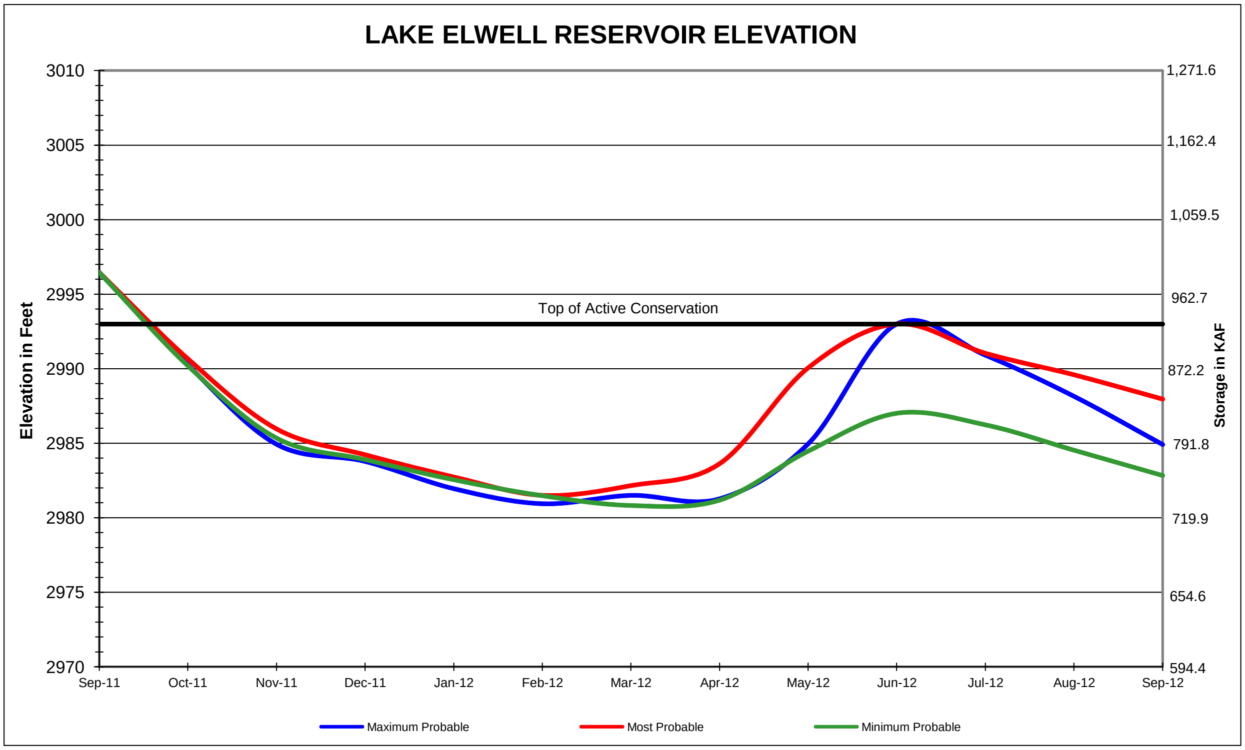
2012 MAXIMUM Probable Inflow Forecast

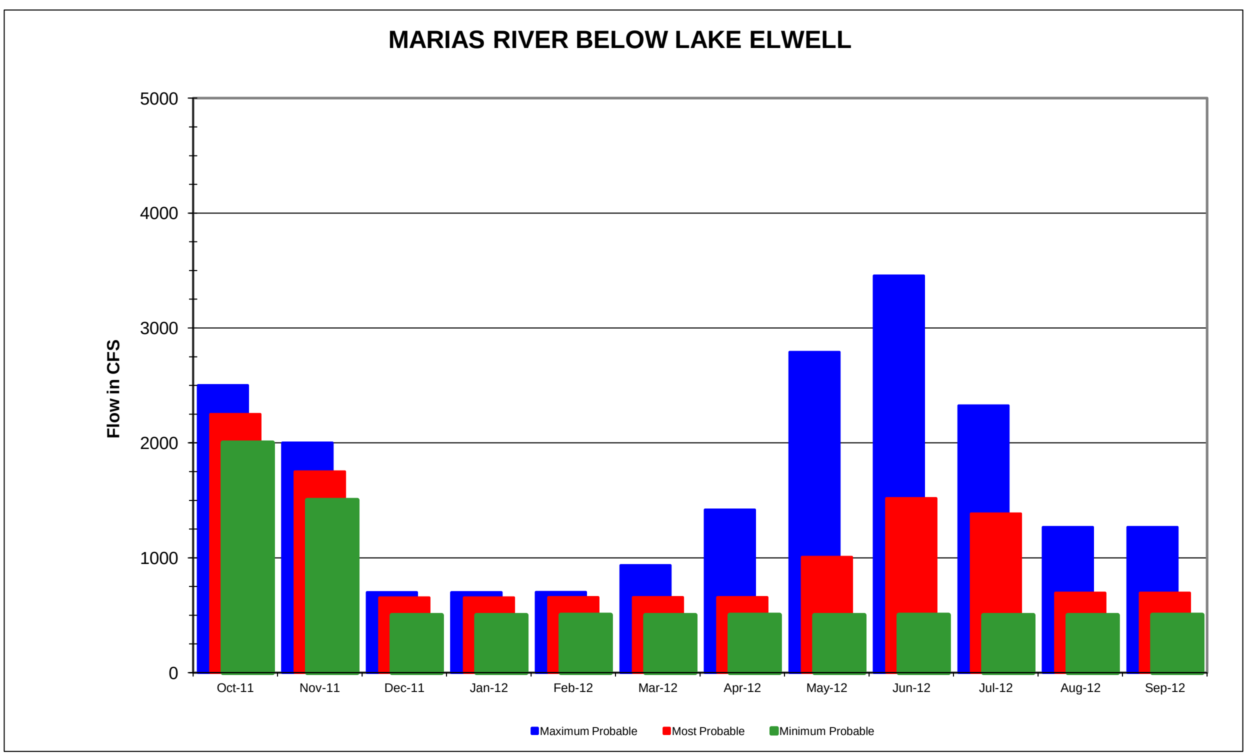
Tiber Reservoir — Initial Cont 990.1 kaf, Elev 2996.45 ft; Maximum Cont 1356.5 kaf, Elev 3013.69 ft; Minimum Cont 260.7 kaf, Elev 2932.27 ft

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	39.9	33.4	26.1	16.4	26.1	65.3	81.1	225.1	340.0	105.2	30.9	25.0	1014.5
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dam Release	kaf	153.7	119.0	43.0	43.0	40.3	57.4	84.4	171.5	205.6	142.9	77.9	75.4	1214.1
Dam Release	cfs	2500	2000	699	699	701	934	1418	2789	3455	2324	1267	1267	
End-Month Content	kaf	876.3	790.7	773.8	747.2	733.0	740.9	737.6	791.2	925.6	887.9	840.9	790.5	
End-Month Elevation	ft	2990.24	2984.93	2983.78	2981.95	2980.94	2981.50	2981.27	2984.96	2993.00	2990.90	2988.14	2984.91	
Net Change Content	kaf	-113.8	-85.6	-16.9	-26.6	-14.2	7.9	-3.3	53.6	134.4	-37.7	-47.0	-50.4	-199.6

FIGURE MTG16

LAKE ELWELL





WATER YEAR 2012

MILK RIVER PROJECT

The 120,000-acre Milk River Project is served by three reservoirs: Sherburne, Fresno, and Nelson. All are single-purpose irrigation structures except Fresno, which has some joint-use flood control space and furnishes a small amount of municipal water to Havre, Chinook, and Harlem, Montana and to the Hill County Water District.

Lake Sherburne

Storage on September 30, 2011, was 21,626 acre-feet, 258 percent of normal at elevation 4754.93. The total inflow to Lake Sherburne during water year 2011 was 179,000 acre-feet, 126 percent of normal. The division of the waters of the St. Mary River, including Lake Sherburne inflow, is carried out in accordance with the Order of the International Joint Commission dated October 4, 1921. There are no agreements for reservoir releases specifically for fish, wildlife, or recreation purposes. There is no minimum release requirement. All stored water is required for irrigation use, and other uses are incidental. Lake Sherburne lands are administered for recreation and wildlife habitat by the National Park Service in accordance with the management plan for Glacier National Park. Lake Sherburne is operated under the following criteria:

1. Near the end of the spring runoff, the discharge should be regulated based on snow measurements and inflow forecasts to insure filling the reservoir to elevation 4788.00. The final reservoir filling up to elevation 4788.00 should be delayed until near the end of the spring runoff. During this final phase, care should be taken to avoid use of the outlet works overflow crest because of less desirable hydraulic flow conditions which develop in the conduit. When the water surface reaches elevation 4788.00, the outlet gates must be opened to the extent necessary to maintain this elevation. If reservoir inflows continue to increase, the outlet gates must be fully opened and maintained in the full open position until the water surface recedes to elevation 4788.00.

2. Every effort must be made to prevent the reservoir from spilling while assuring a full reservoir. During all stages, except the final stage of the spring runoff, the outlet gates should be adjusted to maintain the water surface no higher than elevation 4788.00. The outlet gates should be fully opened during the spring runoff when the water surface rises to or above elevation 4788.00 and fully open at any time the water surface is above elevation 4788.00. Three operating plans were prepared for 2011 to show the operations which could occur under various runoff conditions. These plans were prepared to show the probable limits of operations, therefore, actual conditions and operations could vary widely from the plans.

The most probable plan estimates October through April inflows at 50 percent exceedance or inflows that would be exceeded 50 percent of the time. From May through August Inflows were estimated at 74 percentile numbers or inflows that would be exceeded 26 percent of the time. In September inflows were estimated to be in the 50 percentile range.

The minimum probable October through May inflows to Lake Sherburne were estimated to equal 25 percentile inflows or inflows that are exceeded 75 percent of the time. June inflows were estimated to be 50 percentile flows and then transition back to 25 percentile flows or flows that would be exceeded 75 percent of the time by September.

The maximum probable October through September inflows to Lake Sherburne are estimated to equal 75 percentile flows or inflows that are exceeded 25 percent of the time.

Fresno Reservoir

The cumulative precipitation through the end of June was 167 percent of average, however, as the summer continued the precipitation patterns started to fall trend toward below average precipitation, a relief after the high levels all spring. July and August valley precipitation were 73 and 62 percent of average, respectively. Total inflow for the year was 390,429 acre-feet, 153 percent of average. Storage on September 30, 2011, was 49,274 acre-feet, 124 percent of average and 53 percent of normal full capacity. Releases continued into October in an attempt to draw storage in Fresno Reservoir down to the desired spring flood control target level at elevation 2567.00. The natural runoff of the Milk River at the Eastern Crossing, which is immediately upstream of Fresno Reservoir, is computed as part of the International Joint Commission accounting and published in associated report each subsequent water year. The initial estimate of natural flow at Eastern Crossing for water year 2011 is approximately 331,597 acre-feet.

The storage is primarily for irrigation and municipal water supply. However, the operation of the joint use storage space does provide both conservation use and limited flood control benefits. There is no exclusive flood control space, but some flood benefits are obtained by maintaining the water level below elevation 2567.0 by March 1, prior to spring runoff. Maintaining the water level below elevation 2567.0 provides 32,534 acre-feet of space for storage of spring runoff.

Winter releases will be the amount necessary to provide a minimum of 32,534 acre-feet of space before spring runoff begins, however, no less than 25 cfs to the Milk River as measured at the highway bridge at Havre. An anticipated release of 45 to 60 cfs will be made from Fresno Reservoir during October through February to meet contractual amounts required for the maintenance of suitable water quality for municipal use for the cities of Havre, Chinook, and Harlem, Montana. After spring runoff begins, releases will be made only to meet conservation requirements until it becomes obvious that the reservoir will fill and spill. At that time, releases will be gradually increased so that spill will be minimized when the pool rises above the spillway crest.

The only required summer releases will be those for irrigation and municipal uses. Municipal requirements are established by contract and scheduled in advance by the municipal water contractors. The most probable inflows during October through September are estimated to be 50 percentile flows.

The Most Probable Plan used 57 percentile flows or flows that have historically been exceeded 43 percent of the time for the October through March timeframe. During the April through August timeframe 74 percentile flows or flows that are historically only exceeded 26 percent of the time. In September 50 percentile numbers were used.

The minimum probable inflows during October through September to Fresno Reservoir are estimated to equal 30 percentile inflows that are historically exceeded 70 percent of the time.

The maximum probable inflows during October through March to Fresno Reservoir are estimated to equal 75 percent exceedance levels or conditions that would typically only be exceeded 25 percent of the time. The April-June inflows are estimated to equal 84 percentile inflows or inflows that have historically been exceeded 16 percent of the time. During July through September Inflows were estimated to equal 75 percentile flows or flows that are historically exceeded 25 percent of the time.

Nelson Reservoir

Storage in Nelson Reservoir on September 30, 2011, was 75,077 acre-feet, 132 percent of average at elevation 2220.69. Nelson Reservoir is filled in the spring, prior to the irrigation season, utilizing Dodson South Canal to convey water from the Milk River to the reservoir. Under most circumstances, water is transferred from storage in Fresno Reservoir in the early spring instead of in the fall to minimize seepage losses from Nelson Reservoir during the winter. However, if water is available in Fresno Reservoir after the irrigation season, it may be transferred to Nelson Reservoir to ensure a full supply for the following irrigation season. Nelson Reservoir is operated to satisfy irrigation demands and all other uses are incidental to irrigation. In conjunction with delivering water to Nelson Reservoir, water is conveyed through the Dodson South Canal to provide the Bowdoin Wildlife Refuge adequate water for migratory birds. Bowdoin usually receives a proportional share of their full contract allotment, 3,500 acre-feet, based on the irrigation supply. The operation of Nelson Reservoir and delivery to Bowdoin is integrated with the operation of Fresno Reservoir and Lake Sherburne to ensure maximum utilization of expected runoff.

Irrigation shortages are not expected to occur under the maximum or most probable expected runoff, but could possibly occur under the minimum probable expected runoff. Lake Sherburne is expected to fill under all three plans. Fresno Reservoir is expected to fill under all three plans as well due to the high carryover from 2011. These operations for the three runoff conditions are shown in Table MTT16A-C and Figure MTG17-18. Water will need to be transferred to Nelson Reservoir during late spring of 2012 to provide water for those users dependent on a full and supplemental supply from Nelson Reservoir. The projected transfer of water during March and April is anticipated to be approximately 10,000-14,000 acre-feet for all three operational plans depending on irrigation allotments and available natural runoff.

TABLE MTT16A
MILK RIVER BASIN OPERATING PLAN
Based on October 1 Inflow Estimates

2012 Minimum Probable Runoff

Sherburne Reservoir — Initial Cont 21.6 kaf, Elev 4754.90 ft; Maximum Cont 66.2 kaf, Elev 4788.03 ft; Minimum Cont 3.1 kaf, Elev 4731.73 ft

Sherburne Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	5.4	4.5	3.4	2.4	1.9	3.0	8.9	29.0	39.3	17.5	7.5	5.2	128.0
Release	kaf	8.4	0.0	0.0	0.0	0.0	0.0	0.0	26.1	32.1	18.7	20.5	21.9	127.7
Release	cfs	137	0	0	0	0	0	0	424	539	304	333	368	
Net Change Content	kaf	-3.0	4.5	3.4	2.4	1.9	3.0	8.9	2.9	7.2	-1.2	-13.0	-16.7	0.3
End-Month Content	kaf	18.6	23.1	26.5	28.9	30.8	33.8	42.7	45.6	52.8	51.6	38.6	21.9	
End-Month Elevation	ft	4751.85	4756.37	4759.57	4761.74	4763.41	4765.97	4772.99	4775.05	4779.86	4779.08	4769.89	4755.20	

St. Mary River	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
St. Mary Gain	kaf	12.6	8.4	6.8	5.6	5.1	6.0	13.9	86.5	135.0	80.6	26.3	17.2	404.0
Nat. flow at bound.	kaf	18.0	12.9	10.2	8.0	7.0	9.0	22.8	115.5	174.3	98.1	33.8	22.4	532.0
US share	kaf	4.5	6.5	5.1	4.0	3.5	4.5	5.7	47.5	77.2	38.8	8.5	5.6	211.4
Can share	kaf	13.5	6.4	5.1	4.0	3.5	4.5	17.1	68.0	97.1	59.3	25.3	16.8	320.6
Can del.	kaf	14.9	6.4	5.1	4.0	3.5	4.5	3.4	68.0	97.1	59.3	25.3	16.8	308.3
Excess to Canada	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	13.3
US share to Canada	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.7	0.0	0.0	21.7
Max canal flow	cfs	100	0	0	0	0	0	0	150	650	650	600	375	
Desired canal div	cfs	100	0	0	0	0	0	0	150	650	660	350	375	
St. Mary Canal Div	cfs	99	0	0	0	0	0	0	150	650	651	350	375	
St. Mary Canal Div	kaf	6.1	0.0	0.0	0.0	0.0	0.0	0.0	9.2	38.7	40.0	21.5	22.3	137.8

Fresno Reservoir — Initial Cont 49.3 kaf, Elev 2563.21 ft; Maximum Cont 105.0 kaf, Elev 2577.34 ft; Minimum Cont 0.5 kaf, Elev 2530.27 ft

Fresno Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Milk R. runoff	kaf	4.2	3.4	2.2	1.9	4.9	19.6	22.6	23.8	19.4	6.8	3.5	5.7	118.0
From St. Mary Canal	kaf	5.5	0.0	0.0	0.0	0.0	0.0	0.0	8.3	34.8	36.0	19.4	20.1	124.1
Total inflow	kaf	9.7	3.4	2.2	1.9	4.9	19.6	22.6	32.1	54.2	42.8	22.9	25.8	242.1
Release	kaf	2.8	2.7	2.8	2.8	2.6	5.5	5.4	28.1	58.1	57.7	45.6	25.0	239.1
Release	cfs	46	45	46	46	45	89	91	457	976	938	742	420	
Project irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	43.0	43.4	34.0	18.5	156.2
Bowdoin WR req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	1.1
Ft Belknap irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	5.0	4.0	13.0
Nelson transfer	kaf	0.0	0.0	0.0	0.0	0.0	0.0	6.0	12.0	12.0	10.0	5.0	5.0	50.0
Irrigation delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	1.1	17.3	43.0	47.4	39.0	22.5	170.3
Fresno bypass	kaf	7.8	2.7	2.8	2.8	2.6	15.5	7.5	6.1	0.0	-0.1	0.0	0.0	47.7
Irrigation shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Change Content	kaf	6.9	0.7	-0.6	-0.9	2.3	14.1	17.2	4.0	-3.9	-14.9	-22.7	0.8	3.0
End-Month Content	kaf	56.2	56.9	56.3	55.4	57.7	71.8	89.0	93.0	89.1	74.2	51.5	52.3	
End-Month Elevation	ft	2565.67	2565.90	2565.71	2565.40	2566.17	2570.20	2574.19	2575.02	2574.21	2570.81	2564.04	2564.31	

Nelson Reservoir — Initial Cont 75.1 kaf, Elev 2220.70 ft; Maximum Cont 79.0 kaf, Elev 2221.61 ft; Minimum Cont 18.0 kaf, Elev 2199.91 ft

Nelson Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Nelson delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	6.0	7.0	10.2	9.5	4.8	4.5	42.0
Nelson Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	11.7	20.5	14.8	1.2	57.8
Malta irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	7.8	13.7	8.7	0.8	38.6
Glasgow irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	3.9	6.8	6.1	0.4	19.2
Net Change Content	kaf	0.6	-1.8	-1.8	-1.8	-1.7	-1.8	12.0	0.2	0.0	-9.2	-8.2	5.1	-8.4
End-Month Content	kaf	75.7	73.9	72.1	70.3	68.6	66.8	78.8	79.0	79.0	69.8	61.6	66.7	
End-Month Elevation	ft	2220.84	2220.41	2219.97	2219.53	2219.10	2218.65	2221.57	2221.61	2221.61	2219.40	2217.29	2218.62	

TABLE MTT16B
MILK RIVER BASIN OPERATING PLAN
Based on October 1 Inflow Estimates

2012 Most Probable Runoff

Sherburne Reservoir — Initial Cont 21.6 kaf, Elev 4754.90 ft; Maximum Cont 66.2 kaf, Elev 4788.03 ft; Minimum Cont 3.1 kaf, Elev 4731.73 ft

Sherburne Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	6.8	5.3	3.7	2.9	2.8	3.2	9.5	33.5	48.8	24.0	10.8	7.2	158.5
Release	kaf	8.4	0.0	0.0	0.0	0.0	0.0	15.8	27.7	20.0	24.0	31.3	24.4	151.6
Release	cfs	137	0	0	0	0	0	266	450	336	390	509	410	
Net Change Content	kaf	-1.6	5.3	3.7	2.9	2.8	3.2	-6.3	5.8	28.8	0.0	-20.5	-17.2	6.9
End-Month Content	kaf	20.0	25.3	29.0	31.9	34.7	37.9	31.6	37.4	66.2	66.2	45.7	28.5	
End-Month Elevation	ft	4753.30	4758.46	4761.83	4764.36	4766.73	4769.33	4764.10	4768.93	4788.03	4788.03	4775.12	4761.38	

St. Mary River	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
St. Mary Gain	kaf	18.7	12.9	8.8	7.2	6.1	8.7	24.5	103.8	171.7	103.9	42.6	19.0	527.9
Nat. flow at bound.	kaf	25.5	18.2	12.5	10.1	8.9	11.9	34.0	137.3	220.5	127.9	53.4	26.2	686.4
US share	kaf	6.4	9.1	6.3	5.1	4.5	6.0	8.5	58.4	100.3	53.7	16.4	6.6	281.3
Can share	kaf	19.1	9.1	6.2	5.0	4.4	5.9	25.5	78.9	120.2	74.2	37.0	19.6	405.1
Can del.	kaf	21.0	9.1	6.2	5.0	4.4	5.9	40.3	114.4	120.2	74.2	37.0	19.6	457.3
Excess to Canada	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5	16.8	0.0	0.0	35.3
US share to Canada	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.7	16.8	0.0	0.0	58.5
Max canal flow	cfs	100	0	0	0	0	0	0	200	500	600	600	400	
Desired canal div	cfs	100	0	0	0	0	0	0	200	560	650	600	500	
St. Mary Canal Div	cfs	99	0	0	0	0	0	0	200	501	600	600	400	
St. Mary Canal Div	kaf	6.1	0.0	0.0	0.0	0.0	0.0	0.0	12.3	29.8	36.9	36.9	23.8	145.8

Fresno Reservoir — Initial Cont 49.3 kaf, Elev 2563.21 ft; Maximum Cont 105.0 kaf, Elev 2577.34 ft; Minimum Cont 0.5 kaf, Elev 2530.27 ft

Fresno Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Milk R. runoff	kaf	7.3	3.6	2.4	1.9	4.9	23.4	33.7	34.0	33.5	8.8	4.2	7.7	165.4
From St. Mary Canal	kaf	5.5	0.0	0.0	0.0	0.0	0.0	0.0	11.1	26.8	33.2	33.2	21.4	131.2
Total inflow	kaf	12.8	3.6	2.4	1.9	4.9	23.4	33.7	45.1	60.3	42.0	37.4	29.1	296.6
Release	kaf	3.7	3.3	3.4	3.4	3.1	9.2	12.9	45.1	60.6	63.8	48.4	29.9	286.8
Release	cfs	60	55	55	55	54	150	217	733	1018	1038	787	502	
Project irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.0	43.7	44.9	29.6	22.9	160.1
Bowdoin WR req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	1.1
Ft Belknap irr req	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	5.0	4.0	14.0
Nelson transfer	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	20.0	12.0	14.0	12.0	4.0	72.0
Irrigation delivery	kaf	1.0	0.0	0.0	0.0	0.0	0.0	1.1	19.0	43.7	48.9	34.6	26.9	175.2
Fresno bypass	kaf	7.6	3.3	3.4	3.4	3.1	19.2	16.8	19.3	0.0	0.0	0.0	0.6	76.7
Irrigation shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Change Content	kaf	9.1	0.3	-1.0	-1.5	1.7	14.2	20.8	0.0	-0.3	-21.8	-11.1	-0.7	9.7
End-Month Content	kaf	58.4	58.7	57.7	56.2	58.0	72.2	93.0	93.0	92.7	70.9	59.9	59.1	
End-Month Elevation	ft	2566.39	2566.50	2566.17	2565.68	2566.25	2570.30	2575.02	2575.02	2574.97	2569.97	2566.85	2566.62	

Nelson Reservoir — Initial Cont 75.1 kaf, Elev 2220.70 ft; Maximum Cont 79.0 kaf, Elev 2221.61 ft; Minimum Cont 18.0 kaf, Elev 2199.91 ft

Nelson Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Nelson delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	4.4	8.7	11.7	13.5	11.7	4.0	54.0
Nelson Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	13.2	15.7	18.8	7.2	67.3
Malta irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4	8.5	10.8	12.7	7.2	49.6
Glasgow irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	4.7	4.9	6.1	0.0	17.7
Net Change Content	kaf	0.0	-1.8	-1.8	-1.8	-1.7	0.6	10.4	0.0	0.0	-4.0	-4.6	1.6	-3.1
End-Month Content	kaf	75.1	73.3	71.5	69.7	68.0	68.6	79.0	79.0	79.0	75.0	70.4	72.0	
End-Month Elevation	ft	2220.70	2220.26	2219.82	2219.38	2218.95	2219.10	2221.61	2221.61	2221.61	2220.67	2219.55	2219.94	

TABLE MTT16C
MILK RIVER BASIN OPERATING PLAN
Based on October 1 Inflow Estimates

2012 Maximum Probable Runoff

Sherburne Reservoir — Initial Cont 21.6 kaf, Elev 4754.90 ft; Maximum Cont 66.2 kaf, Elev 4788.03 ft; Minimum Cont 3.1 kaf, Elev 4731.73 ft

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	7.8	7.0	4.2	3.2	3.0	3.6	10.3	35.6	54.5	27.9	12.3	7.6	177.0
Release	kaf	4.9	0.0	0.0	0.0	0.0	0.0	19.7	24.6	35.4	27.9	32.9	17.5	162.9
Release	cfs	80	0	0	0	0	0	331	400	595	454	535	294	
Net Change Content	kaf	2.9	7.0	4.2	3.2	3.0	3.6	-9.4	11.0	19.1	0.0	-20.6	-9.9	14.1
End-Month Content	kaf	24.5	31.5	35.7	38.9	41.9	45.5	36.1	47.1	66.2	66.2	45.6	35.7	
End-Month Elevation	ft	4757.71	4764.02	4767.55	4770.13	4772.41	4774.98	4767.88	4776.08	4788.03	4788.03	4775.05	4767.55	

St. Mary River	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
St. Mary Gain	kaf	28.8	20.6	12.8	10.0	9.4	11.1	39.1	135.9	201.6	111.4	47.1	24.4	652.2
Nat. flow at bound.	kaf	36.6	27.6	17.0	13.2	12.4	14.7	49.4	171.5	256.1	139.3	59.4	32.0	829.2
US share	kaf	9.2	13.8	8.5	6.6	6.2	7.4	14.8	75.5	118.1	59.4	19.4	8.0	346.9
Can share	kaf	27.4	13.8	8.5	6.6	6.2	7.3	34.6	96.0	138.0	79.9	40.0	24.0	482.3
Can del.	kaf	27.4	13.8	8.5	6.6	6.2	7.3	58.8	115.2	138.0	79.9	40.0	24.0	525.7
Excess to Canada	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.9	22.5	0.0	0.0	56.4
US share to Canada	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.2	22.5	0.0	0.0	91.7
Max canal flow	cfs	0	0	0	0	0	0	0	400	500	600	650	400	
Desired canal div	cfs	0	0	0	0	0	0	0	400	500	600	650	300	
St. Mary Canal Div	cfs	0	0	0	0	0	0	0	400	501	600	651	301	
St. Mary Canal Div	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6	29.8	36.9	40.0	17.9	149.2

Fresno Reservoir — Initial Cont 49.3 kaf, Elev 2563.21 ft; Maximum Cont 105.0 kaf, Elev 2577.34 ft; Minimum Cont 0.5 kaf, Elev 2530.27 ft

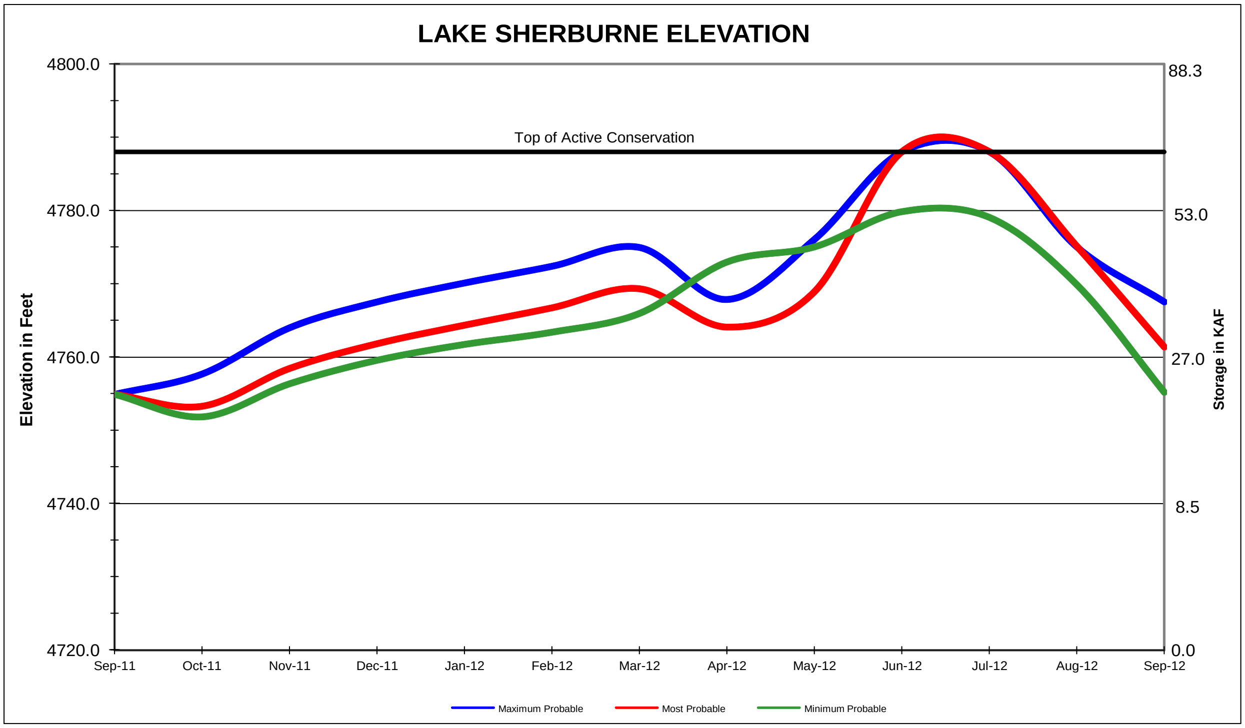
	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Milk R. runoff	kaf	8.8	4.0	2.9	2.0	5.8	33.2	38.3	38.2	39.4	13.9	6.1	9.4	202.0
From St. Mary Canal	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.1	26.8	33.2	36.0	16.1	134.2
Total inflow	kaf	8.8	4.0	2.9	2.0	5.8	33.2	38.3	60.3	66.2	47.1	42.1	25.5	336.2
Release	kaf	8.2	5.4	5.5	5.5	5.2	5.5	26.8	49.6	66.2	59.4	59.4	30.1	326.8
Release	cfs	133	91	89	89	90	89	450	807	1113	966	966	506	
Project irr req	kaf	7.4	0.0	0.0	0.0	0.0	0.0	0.0	20.6	47.5	42.5	40.5	22.1	180.6
Bowdoin WR req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.0	0.0	0.0	2.1
Ft Belknap irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	5.0	4.0	13.0
Nelson transfer	kaf	0.0	0.0	0.0	0.0	0.0	2.0	10.0	20.0	12.0	12.0	14.0	6.0	76.0
Irrigation delivery	kaf	7.4	0.0	0.0	0.0	0.0	0.0	1.1	20.6	47.5	47.5	45.5	26.1	195.7
Fresno bypass	kaf	7.0	5.4	5.5	5.5	5.2	18.3	29.5	14.3	5.1	0.0	0.0	0.0	95.8
Irrigation shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Change Content	kaf	0.6	-1.4	-2.6	-3.5	0.6	27.7	11.5	10.7	0.0	-12.3	-17.3	-4.6	9.4
End-Month Content	kaf	49.9	48.5	45.9	42.4	43.0	70.7	82.2	92.9	92.9	80.6	63.3	58.7	
End-Month Elevation	ft	2563.43	2562.91	2561.90	2560.48	2560.73	2569.92	2572.70	2575.00	2575.00	2572.32	2567.87	2566.48	

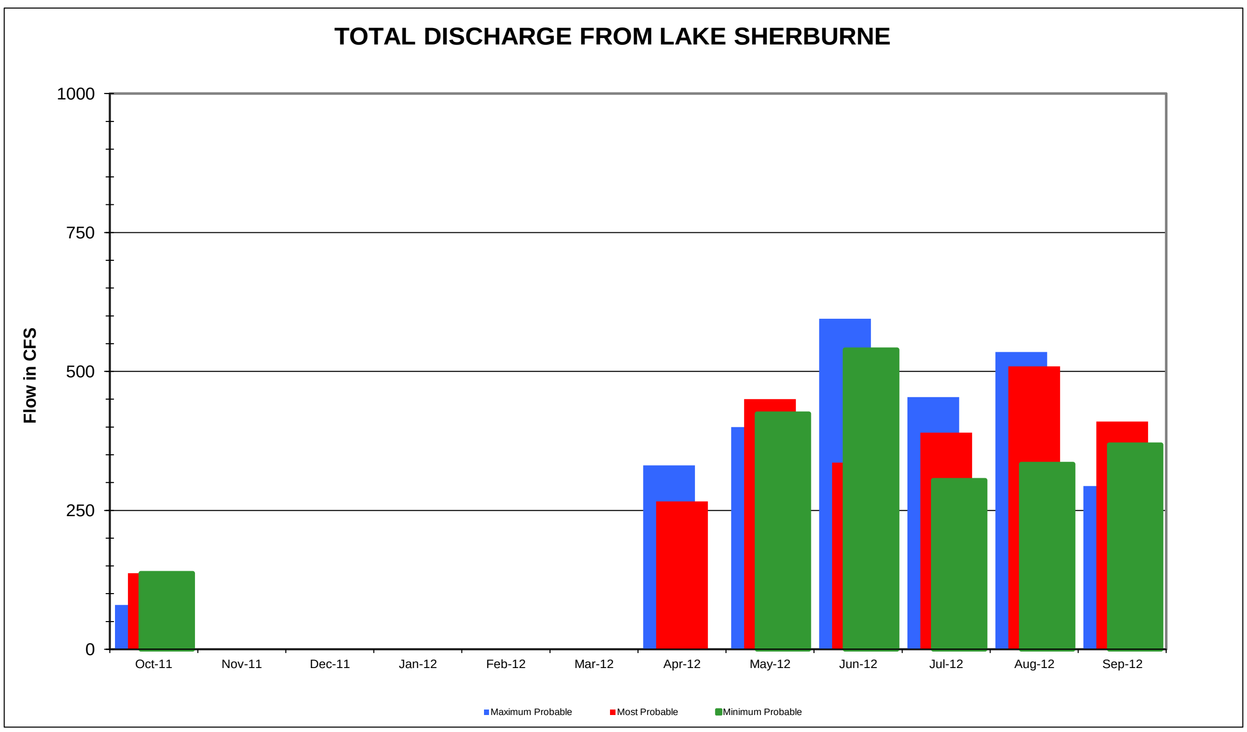
Nelson Reservoir — Initial Cont 75.1 kaf, Elev 2220.70 ft; Maximum Cont 79.0 kaf, Elev 2221.61 ft; Minimum Cont 18.0 kaf, Elev 2199.91 ft

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Nelson delivery	kaf	0.0	0.0	0.0	0.0	0.0	2.0	10.0	17.5	12.0	11.3	13.3	5.5	71.6
Nelson Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	13.9	19.8	15.3	7.5	69.6
Malta irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	9.3	14.0	10.1	4.4	46.8
Glasgow irr req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	4.6	5.8	5.2	3.1	22.8
Net Change Content	kaf	0.0	-1.8	-1.8	-1.8	-1.7	0.2	8.2	2.6	-3.7	-10.3	0.5	0.4	-9.2
End-Month Content	kaf	75.1	73.3	71.5	69.7	68.0	68.2	76.4	79.0	75.3	65.0	65.5	65.9	
End-Month Elevation	ft	2220.70	2220.26	2219.82	2219.38	2218.95	2219.00	2221.00	2221.61	2220.74	2218.18	2218.31	2218.42	

FIGURE MTG17

LAKE SHERBURNE

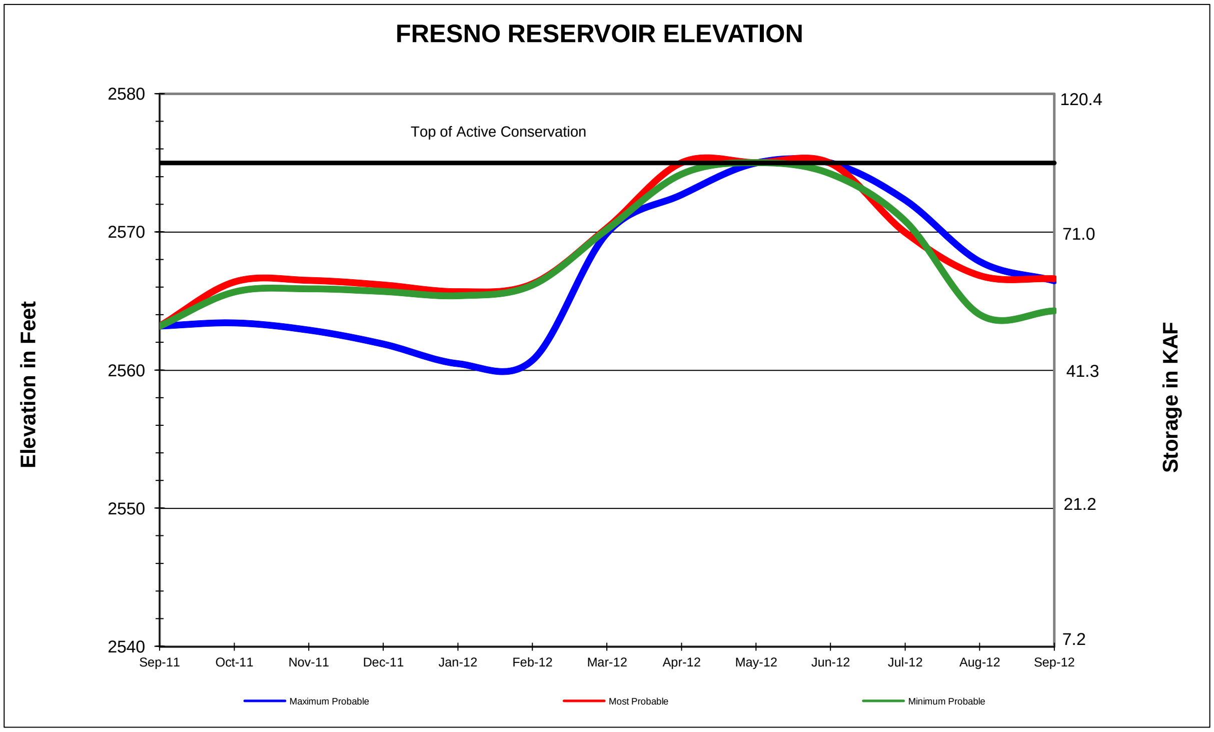


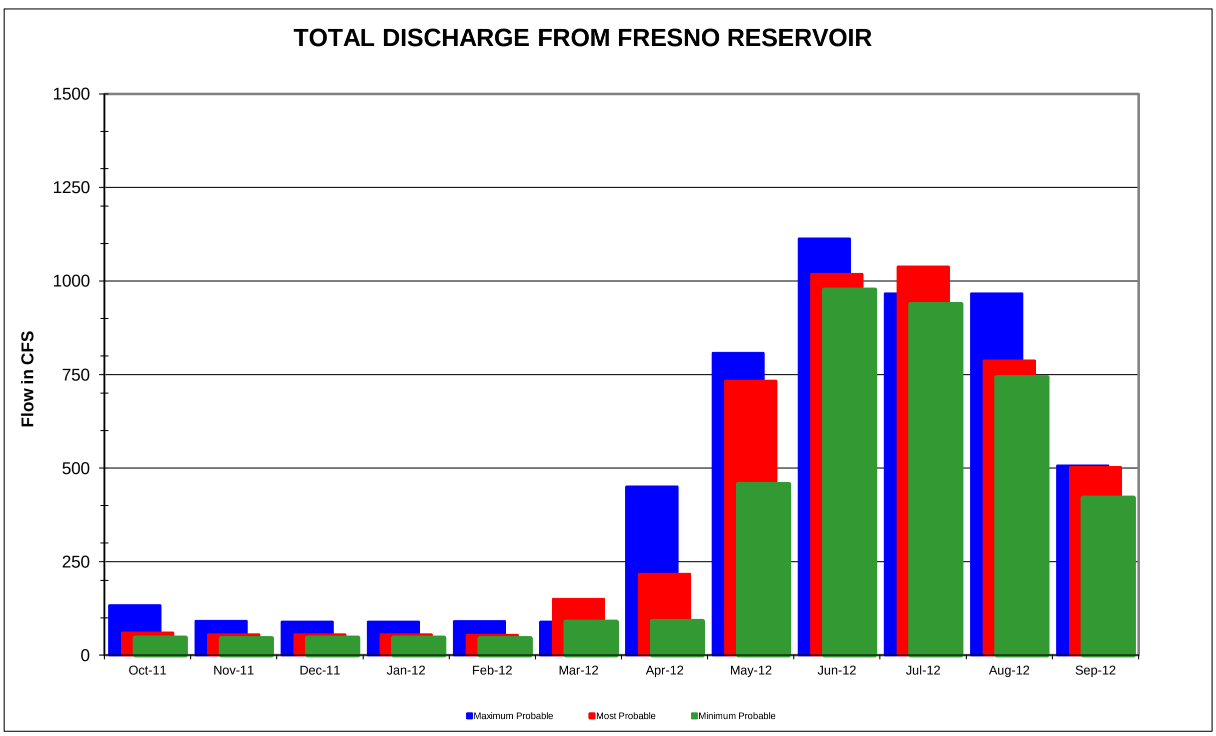


WATER YEAR 2012

FIGURE MTG18

FRESNO RESERVOIR





WATER YEAR 2012

BIGHORN LAKE and YELLOWTAIL POWERPLANT

Three operating plans were prepared for 2012 to show the operations of Bighorn Lake which could occur under various runoff conditions. These operations for the three runoff conditions are shown in Tables MTT17A-C and Figure MTG19. These plans were prepared only to show the probable limits of operations and therefore, actual conditions and operations could vary widely from the plans in order to conform with the authorized project purposes and the current general operating criteria established for Yellowtail Dam and Bighorn Lake.

In July 2007, a hydrographic and a topographic survey were conducted and a new elevation-area-capacity table and curve was developed. The 2007 survey determined that Bighorn Lake has a storage capacity of 1,278,896 acre-feet and a surface area of 17,279 acres at reservoir elevation 3657.0 (the top of the spillway gates). Since closure of the dam in November 1965, the reservoir has accumulated a sediment volume of 103,415 acre-feet below reservoir elevation 3657. This volume represents a 7.48 percent loss in capacity and an average annual loss of 2,480 acre-feet from November 1965 through July 2007. Sediment was deposited at the annual rate of 0.242 acre-feet per square mile during that period. The revised area-capacity table was put into effect on January 1, 2011, reflecting the new storage levels.

The objectives of operations at Yellowtail are to meet all contractual and agreement obligations, all conservation commitments, to optimize generation, provide flood control in cooperation with the Corps of Engineers, and meet fish, wildlife, and recreational needs. The reservoir is operated under the following criteria and limitations:

(1) Beginning near the first of January and at least monthly thereafter through June, forecasts are made of the estimated spring inflow from snow cover and precipitation data. When these forecasts become available, Yellowtail Dam and Bighorn Lake is managed and regulated to allow storage to fill to the top of the joint-use pool at elevation 3640 (1,020,573 acre-feet) and prevent storage in Bighorn Lake from exceeding this level until the peak of the runoff has passed or has begun to recede. If releases in excess of full powerplant capacity are required, they are made only to the extent that current inflow and reservoir content indicate that spills are required. Depending on when the spring runoff starts and the volume of water forecasted, the release of water may draw Bighorn Lake below elevation 3617.0 (807,921 acre-feet).

(2) Once Bighorn Lake has filled or reached its maximum level during spring runoff (normally late June or early July), it is desirable to adjust the releases to maintain storage near the top of the joint-use pool at elevation 3640 (1,020,573 acre-feet) through October. Maintaining Bighorn Lake near this elevation provides suitable waterfowl habitat, enhances flat-water recreation, enhances habitat for the lake fisheries, and minimizes dust problems around the southern area of Bighorn Lake.

(3) In late fall, a uniform release from Bighorn Lake to the Bighorn River is scheduled during November through March with the objective of evacuating storage to an elevation between 3615-3619 (794,613-821,949 acre-feet) by the end of March, depending on the forecasted snowmelt runoff into Bighorn Lake. This attempt to provide

the required storage space needed to safely store the spring runoff while protecting the desired reservoir levels for summer and fall lake recreation activities.

(4) Releases during October and early November are generally maintained at the lowest forecasted minimum release rate to protect the brown trout spawn, if dry winter conditions require reducing releases later during the winter months.

(5) Whenever an adequate water supply is available, releases from Bighorn Lake will be maintained at rates to sustain flows in the Bighorn River at 2,500 cfs or higher. When there is not an adequate water supply available, it may be necessary to reduce releases to the Bighorn River to 2,000 cfs or the absolute minimum flow of 1,500 cfs required to protect a lower quality river fishery. These flow levels affect the river fishery as follows:

2,500 cfs - provides good spawning, rearing, and cover conditions in all major side channels.
2,000 cfs - provides adequate spawning and rearing conditions in most side channels but cover for adult fish is limited.
1,500 cfs - protects main channel habitat but not important side channels.

(6) During years of below normal runoff, storage in Bighorn Lake may not reach the top of the joint-use pool in efforts to protect the desired minimum river fishery flow levels. During some critical dry years, it has been observed that river flows have even been reduced to less than 1,500 cfs to ensure the operation of the Yellowtail powerplant and also provide desirable lake levels for the recreation season.

(7) All water released from Bighorn Lake is generally released through the Yellowtail Powerplant. Releasing any water in excess of the powerplant capacity (normally 7,500-8,200 cfs) is avoided, except during times of unusually heavy inflow or scheduled powerplant maintenance.

(8) For downstream flood control purposes, avoid making releases that would cause flows in the Bighorn River to exceed 20,000 cfs at St. Xavier and 25,000 cfs at Bighorn and 65,000 cfs in the Yellowstone River at Miles City.

(9) During April through October, water is diverted to the Bighorn Canal to meet downstream irrigation demands of the Crow Indian Irrigation Project. Maximum diversions to the Bighorn Canal are limited to a maximum of about 550 cfs.

(10) During low flow years when the Yellowstone River flow rate at Forsyth, Montana, drops below 6,000 cfs anytime between August 10 and September 15, river releases will be increased by 100 cfs to meet contractual commitments with Pennsylvania Power and Light, MT (PPL-MT) concerning their operations of Castle Rock Reservoir at Colstrip Powerplant. This release will continue for approximately 10-30 days.

(11) Every 3 years about mid-October after the irrigation season is over, all storage is evacuated from the Yellowtail Afterbay, except for approximately 190 acre-feet, to allow

for the measurement of seepage downstream of Yellowtail Dam. During this time, releases to the Bighorn River are reduced to no lower than 400 cfs for approximately 5½ hours. To minimize effects to downstream water users and landowners, changes in release rates from the Afterbay are done gradually.

(12) Release rates during the winter are generally not changed or fluctuated more than 100 cfs in 6 hours when the downstream river channel is ice covered.

(13) Because the inflow to Bighorn Lake is heavily dependent upon the releases from Boysen and Buffalo Bill Reservoirs, all reservoir and river operations are closely coordinated with the WYAO.

(14) In an Agreement with the Northern Cheyenne Indian Tribe and pursuant to the Northern Cheyenne Indian Reserved Water Rights Settlement Act of 1992, Reclamation recognizes 30,000 acre-feet of stored water in Bighorn Reservoir for use or disposition by the Tribe. The United States shall furnish a maximum of 30,000 acre-feet of water annually to the Tribe in accordance with the limitations set forth in the Compact and the Settlement Act.

Inflows into Bighorn Lake during May through July were over 238 percent of average. Following the record precipitation in May and June, precipitation in the Bighorn River Basin eventually dropped to about 35 percent of average during July through September. Even though the weather conditions were quite dry during July through September, the inflows into Bighorn Lake still remained well above average during this same period. The inflows dropped from 275 percent during July to 177 percent of average in August and to 115 percent of average in September. To evacuate storage in the exclusive flood control space, releases from Bighorn Lake to the Bighorn River during September were maintained between 3,500-4,200 cfs. By September 30, 2011, storage in Bighorn Lake was slowly evacuated to 1,025,004 acre-feet at elevation 3640.35. This was 106 percent of average and 0.35 feet above the top of the joint-use pool and 10.21 feet and 64,135 acre-feet higher than reported on September 30, 2010.

The forecasted inflows to Bighorn Lake are based upon the natural accretions between Boysen and Buffalo Bill Reservoirs to Yellowtail Dam plus the projected releases out of Boysen and Buffalo Bill Dams.

The most probable October-March accretions were estimated to equal 82 percent of the long-term historic monthly average October-March accretions. The April-September accretions were estimated to equal 40 percentile historic accretions or accretions that have historically been exceeded 60 percent of the time.

The minimum probable October-March accretions were estimated to be about 35,000 acre-feet less than the most probable October-March accretions. The April-September accretions were estimated to equal 10 percentile historic accretions or accretions that have historically been exceeded 90 percent of the time.

The maximum probable October-March accretions were estimated to be about 35,000 acre-feet greater than the most probable October-March accretions. The April-September accretions were estimated to equal 70 percentile historic accretions or accretions that have been exceeded 30 percent of the time.

Under the most probable and maximum probable runoff conditions, storage in Bighorn Lake would be expected to fill to the top of the joint-use pool at elevation 3640 (1,020,573 acre-feet) by the end of July and essentially remain full through October. However, under the minimum probable runoff scenario, Bighorn Lake would be expected to slowly fill to near elevation 3635.46 by the end of June. This would be about 4.54 feet below the top of the joint-use pool. Under the most probable runoff condition, it is anticipated the minimum fall and winter release from Bighorn Lake to the Bighorn River will be maintained at or above 3,160 cfs to better assure the reservoir of filling to the top of the joint-use pool by late June or early July. Under the minimum probable runoff condition, it is anticipated the minimum release from Bighorn Lake to the Bighorn River would need to be decreased to 2,000 cfs during April through September to best assure the reservoir of filling to levels that would enhance and meet the operating objectives of the lake during water year 2012. Under the most and maximum probable runoff conditions, it is anticipated river releases would be maintained at 2,500 cfs or higher all year.

The average power generation produced annually at Yellowtail Powerplant during 1967-2011 is 867.3 million kilowatt-hours. Under the minimum probable runoff condition, power generation produced at Yellowtail Powerplant during 2012 would be expected to be about 130.2 million kilowatt-hours less than average, respectively. Under the most and maximum probable runoff conditions, power generation would be about 118.7 and 458.3 million kilowatt-hours greater than average.

In all three plans, maintenance outages are scheduled as shown on Table MTT19. Only under maximum probable runoff conditions, would a spill in excess of full powerplant capacity be expected during these 2012 power outages.

TABLE MTT17A
BIGHORN LAKE OPERATING PLAN
Based on October 1 2011 Inflow Estimates

2012 MINIMUM Probable runoff

Bighorn Reservoir — Initial Cont 1025.0 kaf, Elev 3640.35 ft — Maximum Cont 1278.9 kaf, Elev 3657.00 ft — Minimum Cont 469.9 kaf, Elev 3547.00 ft

Bighorn Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Boysen Release	kaf	58.4	56.6	58.4	58.5	54.7	58.4	44.6	67.6	69.9	76.9	69.2	59.5	732.7
Boysen Release	cfs	950	951	950	951	951	950	750	1099	1175	1251	1125	1000	
Buffalo Bill Riv Flo	kaf	61.6	21.1	21.8	21.8	20.4	21.8	31.7	101.2	105.0	118.7	104.3	82.3	711.7
Buffalo Bill Riv Flo	cfs	1002	355	355	355	355	355	533	1646	1765	1930	1696	1383	
Station Gain	kaf	70.5	61.3	48.5	48.3	55.0	74.9	41.8	18.6	48.4	-55.1	-45.6	3.7	370.3
Monthly Inflow	kaf	190.5	139.0	128.7	128.6	130.1	155.1	118.1	187.4	223.3	140.5	127.9	145.5	1814.7
Monthly Inflow	cfs	3098	2336	2093	2091	2262	2522	1985	3048	3753	2285	2080	2445	
Turbine Release	kaf	194.9	183.8	189.9	189.9	157.1	159.4	115.7	130.3	138.0	146.9	146.1	133.6	1885.6
Bypass/Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Release	kaf	194.9	183.8	189.9	189.9	157.1	159.4	115.7	130.3	138.0	146.9	146.1	133.6	1885.6
Total Release	cfs	3170	3089	3088	3088	2731	2592	1944	2119	2319	2389	2376	2245	
Spring Flow	kaf	4.3	4.2	4.3	4.3	4.0	4.3	4.2	4.3	4.2	4.3	4.3	4.2	50.9
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.9	11.6	23.2	28.2	27.4	18.8	110.1
Afterbay Rels	kaf	199.2	188.0	194.2	194.2	161.1	163.7	119.9	134.6	142.2	151.2	150.4	137.8	1936.5
Afterbay Rels	cfs	3240	3159	3158	3158	2801	2662	2015	2189	2390	2459	2446	2316	
River Release	kaf	199.2	188.0	194.2	194.2	161.1	163.7	119.0	123.0	119.0	123.0	123.0	119.0	1826.4
River Release	cfs	3240	3159	3158	3158	2801	2662	2000	2000	2000	2000	2000	2000	
Min Release	kaf	123.0	188.0	194.2	194.2	161.1	123.0	119.0	123.0	119.0	123.0	123.0	119.0	1709.5
End-Month Targets	kaf	1020.6					822.0				1020.6			
End-Month Content	kaf	1020.6	975.8	914.6	853.3	826.3	822.0	824.4	881.5	966.8	960.4	942.2	954.1	
End-Month Elevation	ft	3640.00	3636.26	3630.35	3623.16	3619.60	3619.01	3619.34	3626.61	3635.46	3634.89	3633.17	3634.30	
Net Change Content	kaf	-4.4	-44.8	-61.2	-61.3	-27.0	-4.3	2.4	57.1	85.3	-6.4	-18.2	11.9	-70.9

Yellowtail Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	kaf	194.9	183.8	189.9	189.9	157.1	159.4	115.7	130.3	138.0	146.9	146.1	133.6	1885.6
Generation	gwh	78.795	73.744	74.903	73.350	59.716	60.235	43.706	49.770	54.050	58.292	57.743	52.747	737.051
End-Month Power Cap	mw	283.4	279.2	272.9	265.7	262.2	261.6	261.9	269.2	278.4	277.7	275.9	277.1	
% Max Gen		37	36	35	34	30	28	21	23	26	27	27	25	
Ave kwh/af		404	401	394	386	380	378	378	382	392	397	395	395	391
Upstream Generation	gwh	13.106	2.149	4.997	5.679	5.278	5.627	11.070	25.014	25.061	27.415	24.733	20.239	170.368
Total Generation	gwh	91.901	75.893	79.900	79.029	64.994	65.862	54.776	74.784	79.111	85.707	82.476	72.986	907.419

TABLE MTT17B
BIGHORN LAKE OPERATING PLAN
Based on October 1 2011 Inflow Estimates

2012 MOST Probable runoff

Bighorn Reservoir — Initial Cont 1025.0 kaf, Elev 3640.35 ft; Maximum Cont 1278.9 kaf, Elev 3657.00 ft; Minimum Cont 469.9 kaf, Elev 3547.00 ft

	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Boysen Release	kaf	58.4	56.5	58.4	58.4	54.7	58.4	67.4	142.2	156.5	132.2	98.3	59.5	1000.9
Boysen Release	cfs	950	950	950	950	951	950	1133	2313	2630	2150	1599	1000	
Buffalo Bill Riv Flo	kaf	61.6	21.1	21.8	21.8	20.4	21.8	31.7	109.7	162.8	168.4	121.9	102.8	865.8
Buffalo Bill Riv Flo	cfs	1002	355	355	355	355	355	533	1784	2736	2739	1983	1728	
Station Gain	kaf	94.3	72.3	57.2	56.9	64.8	88.1	47.4	10.0	130.9	17.3	-36.2	23.6	626.6
Monthly Inflow	kaf	214.3	149.9	137.4	137.1	139.9	168.3	146.5	261.9	450.2	317.9	184.0	185.9	2493.3
Monthly Inflow	cfs	3485	2519	2235	2230	2432	2737	2462	4259	7566	5170	2992	3124	
Turbine Release	kaf	218.7	183.8	189.9	189.9	177.7	189.9	184.7	221.4	273.9	297.9	199.8	185.9	2513.5
Bypass/Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Release	kaf	218.7	183.8	189.9	189.9	177.7	189.9	184.7	221.4	273.9	297.9	199.8	185.9	2513.5
Total Release	cfs	3557	3089	3088	3088	3089	3088	3104	3601	4603	4845	3249	3124	
Spring Flow	kaf	4.3	4.2	4.3	4.3	4.0	4.3	4.2	4.3	4.2	4.3	4.3	4.2	50.9
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.9	11.6	23.2	28.2	27.4	18.8	110.1
Afterbay Rels	kaf	223.0	188.0	194.2	194.2	181.7	194.2	188.9	225.7	278.1	302.2	204.1	190.1	2564.4
Afterbay Rels	cfs	3627	3159	3158	3158	3159	3158	3175	3671	4674	4915	3319	3195	
River Release	kaf	223.0	188.0	194.2	194.2	181.7	194.2	188.0	214.1	254.9	274.0	176.7	171.3	2454.3
River Release	cfs	3627	3159	3158	3158	3159	3158	3159	3482	4284	4456	2874	2879	
Min Release	kaf	153.7	148.8	153.7	153.7	143.8	153.7	148.8	153.7	148.8	153.7	153.7	148.8	1814.9
End-Month Targets	kaf	1020.6					822.0				1020.6			
End-Month Content	kaf	1020.6	986.7	934.2	881.4	843.6	822.0	783.8	824.3	1000.6	1020.6	1004.8	1004.8	
End-Month Elevation	ft	3640.00	3637.21	3632.38	3626.60	3621.91	3619.01	3613.30	3619.32	3638.38	3640.00	3638.72	3638.72	
Net Change Content	kaf	-4.4	-33.9	-52.5	-52.8	-37.8	-21.6	-38.2	40.5	176.3	20.0	-15.8	0.0	-20.2

Yellowtail Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	kaf	218.7	183.8	189.9	189.9	177.7	189.9	184.7	221.4	273.9	297.9	199.8	185.9	2513.5
Generation	gwh	88.417	73.870	75.278	73.963	68.112	71.996	69.228	83.021	106.850	119.985	80.526	74.740	985.986
End-Month Power Cap	mw	283.4	280.3	275.0	269.2	264.5	261.6	256.2	261.9	281.6	283.4	281.9	281.9	
% Max Gen		41	36	35	35	34	34	33	39	52	56	38	36	
Ave kwh/af		404	402	396	389	383	379	375	375	390	403	403	402	392
Upstream Generation	gwh	13.088	2.155	5.019	5.704	5.308	5.665	13.090	32.974	33.810	35.207	32.190	26.632	210.842
Total Generation	gwh	101.505	76.025	80.297	79.667	73.420	77.661	82.318	115.995	140.660	155.192	112.716	101.372	1196.828

TABLE MTT17C
BIGHORN LAKE OPERATING PLAN
Based on October 1 2011 Inflow Estimates

2012 MAXIMUM Probable runoff

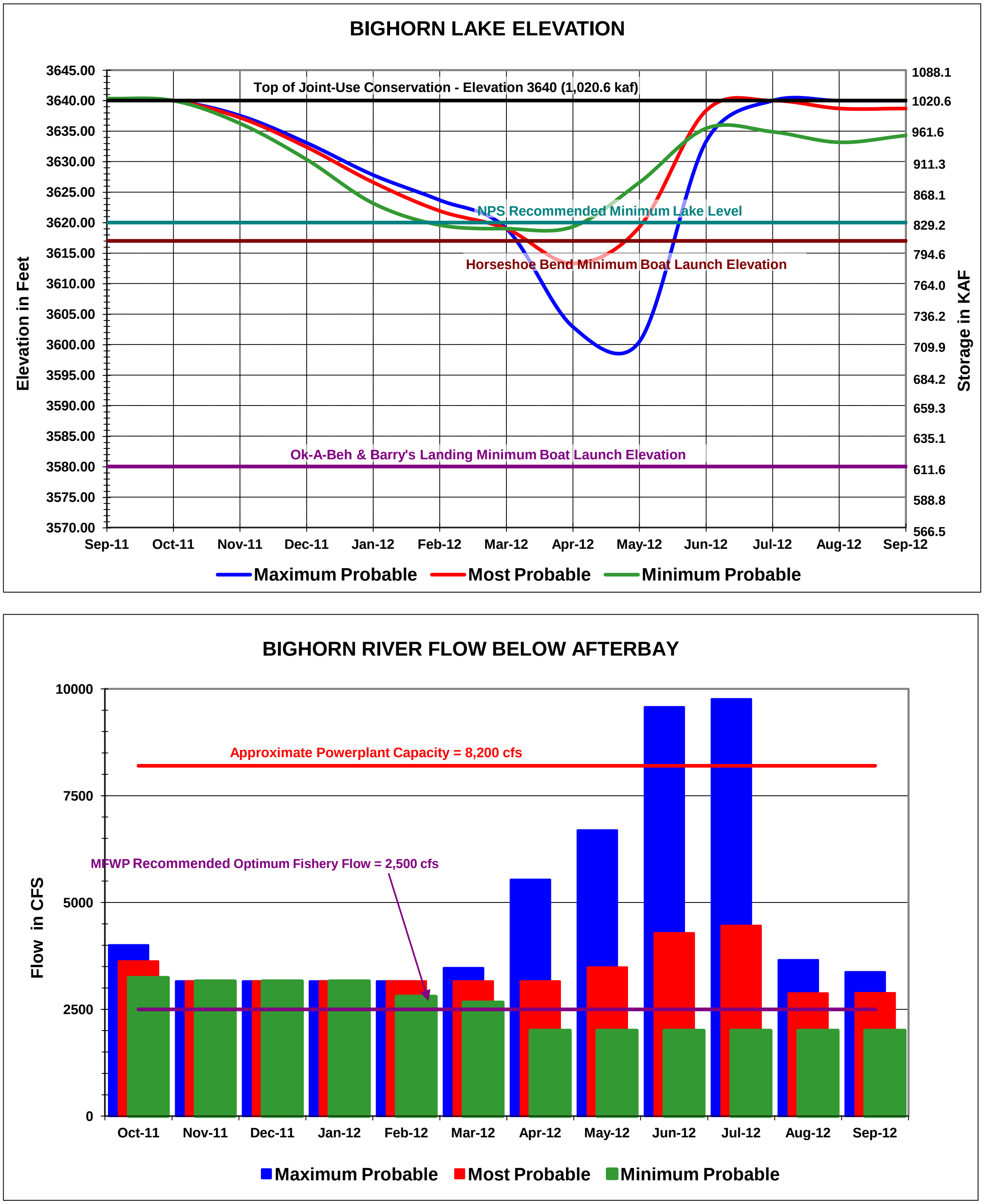
Bighorn Reservoir — Initial Cont 1025.0 kaf, Elev 3640.35 ft — Maximum Cont 1278.9 kaf, Elev 3657.00 ft — Minimum Cont 469.9 kaf, Elev 3547.00 ft

Bighorn Reservoir		2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Boysen Release	kaf		58.4	56.5	58.4	58.5	54.7	58.4	127.2	241.1	281.4	290.7	120.0	72.0	1477.3
Boysen Release	cfs		950	950	950	951	951	950	2138	3921	4729	4728	1952	1210	
Buffalo Bill Riv Flo	kaf		61.6	21.1	21.8	21.8	20.4	21.8	74.5	179.6	291.2	272.3	151.3	102.7	1240.1
Buffalo Bill Riv Flo	cfs		1002	355	355	355	355	355	1252	2921	4894	4429	2461	1726	
Station Gain	kaf		117.5	76.2	60.3	60.1	68.4	93.1	27.5	-14.5	246.9	138.3	-23.6	40.5	890.7
Monthly Inflow	kaf		237.5	153.8	140.5	140.4	143.5	173.3	229.2	406.2	819.5	701.3	247.7	215.2	3608.1
Monthly Inflow	cfs		3863	2585	2285	2283	2495	2818	3852	6606	13772	11406	4028	3617	
Turbine Release	kaf		241.9	183.8	189.9	189.9	177.7	208.8	326.1	418.6	499.3	521.6	247.7	215.2	3420.5
Bypass/Spill/Waste	kaf		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.4	102.6	0.0	0.0	192.0
Total Release	kaf		241.9	183.8	189.9	189.9	177.7	208.8	326.1	418.6	588.7	624.2	247.7	215.2	3612.5
Total Release	cfs		3934	3089	3088	3088	3089	3396	5480	6808	9893	10152	4028	3617	
Spring Flow	kaf		4.3	4.2	4.3	4.3	4.0	4.3	4.2	4.3	4.2	4.3	4.3	4.2	50.9
Irrigation Reqmnt	kaf		0.0	0.0	0.0	0.0	0.0	0.0	0.9	11.6	23.2	28.2	27.4	18.8	110.1
Afterbay Rels	kaf		246.2	188.0	194.2	194.2	181.7	213.1	330.3	422.9	592.9	628.5	252.0	219.4	3663.4
Afterbay Rels	cfs		4004	3159	3158	3158	3159	3466	5551	6878	9964	10222	4098	3687	
River Release	kaf		246.2	188.0	194.2	194.2	181.7	213.1	329.4	411.3	569.7	600.3	224.6	200.6	3553.3
River Release	cfs		4004	3159	3158	3158	3159	3466	5536	6689	9574	9763	3653	3371	
Min Release	kaf		153.7	188.0	194.2	194.2	181.7	192.5	148.8	153.7	148.8	153.7	153.7	148.8	2011.8
End-Month Targets	kaf		1020.6					822.0				1020.6			
End-Month Content	kaf		1020.6	990.6	941.2	891.7	857.5	822.0	725.1	712.7	943.5	1020.6	1020.6	1020.6	
End-Month Elevation	ft		3640.00	3637.54	3633.08	3627.80	3623.68	3619.01	3602.90	3600.54	3633.30	3640.00	3640.00	3640.00	
Net Change Content	kaf		-4.4	-30.0	-49.4	-49.5	-34.2	-35.5	-96.9	-12.4	230.8	77.1	0.0	0.0	-4.4

Yellowtail Power		2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	kaf		241.9	183.8	189.9	189.9	177.7	208.8	326.1	418.6	499.3	521.6	247.7	215.2	3420.5
Generation	gwh		97.796	73.914	75.412	74.183	68.410	79.367	120.812	151.569	188.961	208.191	100.074	86.943	1325.632
End-Month Power Cap	mw		283.4	280.6	275.8	270.4	266.2	261.6	246.7	244.5	276.0	283.4	283.4	283.4	
% Max Gen			46	36	35	35	34	37	58	71	91	97	47	42	
Ave kwh/af			404	402	397	391	385	380	370	362	378	399	404	404	388
Upstream Generation	gwh		13.113	2.159	5.006	5.726	5.334	5.702	29.460	33.724	33.619	35.219	34.104	27.687	230.853
Total Generation	gwh		110.909	76.073	80.418	79.909	73.744	85.069	150.272	185.293	222.580	243.410	134.178	114.630	1556.485

FIGURE MTG19

BIGHORN LAKE



WATER YEAR 2012

ENERGY GENERATION OPERATION PLANS

Energy generation at Canyon Ferry and Yellowtail powerplants for conditions of minimum probable, most probable, and maximum probable runoff is expected to vary between 1,073,000,000 and 1,818,000,000 kilowatt-hours as shown in Table MTT18.

Table MTT18:
Estimated Energy Generation During Water Year 2012
(Million Kilowatt-Hours)

Plant	Minimum Probable Runoff	Most Probable Runoff	Maximum Probable Runoff
Canyon Ferry	336	446	492
Yellowtail	737	986	1,326
Total	1,073	1,432	1,818

Operation of powerplants and transmission facilities in the Eastern and Western Divisions will be coordinated to bring about the most efficient utilization of power production to realize maximum project benefits. It is also anticipated that the marketing from all Federal power systems in the Missouri and Colorado River Basins will be closely coordinated to optimize the revenues to the Federal Government.

Table MTT19:
2012 Scheduled Outages
Yellowtail Reservoir

FACILITY	DESCRIPTION OF WORK	SCHEDULED DATE
Yellowtail Afterbay	2 day outage when maximum Afterbay elevation cannot exceed 3187.5 feet as the Fort Smith Government Camp sewage lagoon is drawn down in preparation for winter	10/25-26/2011
Unit #1	10-day outage for annual electrical and mechanical maintenance. RTU points check.	01/03-12/2012
Unit #2	10-day outage for annual electrical and mechanical maintenance. RTU points check.	01/17-26/2012
Unit #3	10-day outage for annual electrical and mechanical maintenance. RTU points check.	01/30-02/08/2012
Unit #4	30-day outage for 4-year electrical and mechanical maintenance. RTU points check. Unbalanced headgate closure test.	02/13-03/13/2012
Yellowtail Afterbay	12-day outage for sluice gate maintenance. Maintain Afterbay elevation of 3183 to discharge all releases to the Bighorn River through the radial gates.	04/16-27/2012
Yellowtail Afterbay	12-day outage for sluice gate maintenance. Maintain Afterbay elevation of 3183 to discharge all releases to the Bighorn River through the radial gates.	08/20-31/2012
115-KV and 230KV Main and Transfer Bus	2-day outage on the 115KV system and a 2-day outage on the 230KV system for main and transfer bus protective relay testing.	08/27-30/2012
115-KV XFMR Bank KCA & SS XFMR KCC	4-day outage for outage for triennial electrical maintenance and doble test.	09/10-13/2012
230-KV XFMR Bank KCB & SS XFMR KCD	4-day outage for outage for triennial electrical maintenance and doble test.	09/17-20/2012
SS XFMR KCE	2-day outage for outage for triennial electrical maintenance and doble test.	09/23-24/2012

Canyon Ferry Reservoir

FACILITY	DESCRIPTION OF WORK	SCHEDULED DATE
Unit #2	8-day outage for annual maintenance.	10/11-20/2011
Transformer K2A	3-day outage for annual maintenance.	10/11-13/2011
Unit #1	20-day outage for 3-year maintenance.	11/14-12/15/2011
Transformer K1A	4-day outage for 3-year maintenance.	11/14-17/2011
Unit #1 Protective Relays	2-day outage for relay functional test.	12/14-15/2011
Unit #3	8-day outage for annual maintenance.	03/12-22/2012
Transformer K3A	3-day outage for annual maintenance.	03/13-15/2012
Crow Creek	4-day outage for 3-year maintenance on OCB 412 and transformer KY1A	04/02-05/2012
River Outlet Gates 1, 2, 3 & 4	4-day outage for annual maintenance.	04/09-12/2012
River Outlet Gates 1, 2, 3 & 4	4-day annual maintenance.	04/16-19/2012
OCB 162	4-day outage for annual maintenance.	05/21-24/2012
OCB 266	4-day outage for annual maintenance.	06/04-07/2012
OCB 262	4-day outage for annual maintenance.	06/11-14/2012
OCB 366	4-day outage for annual maintenance.	06/18-21/2012
OCB 362	4-day outage for annual maintenance.	06/25-28/2012
A Line	1-day outage for 5-year CT & PT testing.	07/31/2012
B Line	1-day outage for 5-year CT & PT testing.	08/01/2012

BULL LAKE

Three operating plans were prepared for water year 2012 to show the operations which could occur under various runoff conditions. The operations for the three runoff conditions are shown in Table WYT10A, WYT10B, WYT10C and Figure WYG6. These plans were prepared only to show the probable limits of operations and therefore actual conditions and operations could vary widely from the most probable plan.

The primary objective of operations at Bull Lake is to provide irrigation water to the Midvale Irrigation District (Midvale). Under normal operation, the reservoir also provides small incidental flood control benefits and a water resource for fish, wildlife, and recreation. Bull Lake is operated under the following criteria and limitations:

(1) Based on forecasted inflows, March-June releases are scheduled with the objective of filling the lake to a content of 152,459 acre-feet (AF) at elevation 5805.00 feet during July while eliminating or minimizing any spill.

(2) During April-October, releases must be adequate to meet the irrigation needs of Midvale and downstream irrigators with senior water rights on Bull Lake Creek.

(3) Based on the available water supply, non-irrigation season releases from Bull Lake to Bull Lake Creek are generally maintained between 20 and 45 cubic feet per second (cfs).

(4) The reservoir water surface elevation will be kept below elevation 5794.00 feet during the winter to prevent ice damage to the spillway gates. The gates were not designed to withstand ice pressure. To prevent damage to the concrete in the spillway inlet from ice, the reservoir is operated to have a storage level of 100,000 AF or less by November 30. The objective at the onset of winter is to be as close as possible to the 100,000 AF level (5787.13 feet) to also provide winter fish habitat.

2012 Operating Plans

Storage in Bull Lake at the end of water year 2011 was 92,967 AF at elevation 5784.50 feet, which is 61 percent of capacity and 123 percent of the end of September average. Projected inflows for all months of water year 2012 under most probable inflow conditions are estimated to be median flows, or flows which have historically been exceeded 50 percent of the time. The reservoir is expected to fill under all three inflow scenarios.

Reasonable minimum condition inflows are estimated to be lower decile flows for all months in water year 2012. Lower decile flows are flows which have historically been exceeded 90 percent of the time.

Under reasonable maximum inflow conditions, upper decile flows are expected for all months in water year 2012. Upper decile flows are flows which have historically been exceeded 10 percent of the time.

Under all three inflow scenarios, releases in October following the end of irrigation season and continuing through the fall and winter would be held at 25 cfs with the objective of maintaining the reservoir level through the winter period.

Water diverted into the Wyoming Canal can be delivered to Midvale lands directly or routed through Pilot Butte Reservoir and delivered to district lands via the Pilot Canal. In June of 2009 both units at Pilot Butte Powerplant were placed in “Mothballed” status and are not expected to generate electricity in water year 2012.

TABLE WYT10A

RIVERTON PROJECT OPERATING PLAN
Based on October 1 Inflow Estimates
2012 Reasonable Minimum Inflow Estimates

Bull Lake Reservoir Operations — Initial Content 93.0 Kaf — Operating Limits: Max 151.9 Kaf, 5804.82 Ft.; Min 20.0 Kaf, 5750.93 Ft.

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	4.5	2.1	1.8	1.6	1.2	1.5	2.8	25.8	39.4	26.7	14.9	7.3	129.6
Total Dam Release	kaf	5.9	1.5	1.5	1.5	1.4	1.5	1.5	1.5	5.3	36.6	55.8	51.7	165.8
Total Dam Release	cfs	96.	25.	25.	25.	25.	25.	25.	25.	90.	595.	907.	868.	
Excess Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	3.8
End-month Content	kaf	91.6	92.2	92.5	92.5	92.3	92.3	93.6	117.8	151.9	142.0	101.2	56.8	
End-month Elevation	ft	5784.0	5784.2	5784.3	5784.3	5784.2	5784.2	5784.7	5793.5	5804.8	5801.7	5787.6	5769.6	
BLR Net Change	kaf	-1.4	0.6	0.3	0.1	-0.2	0.0	1.3	24.3	34.1	-9.9	-40.9	-44.4	-36.2

Wind River		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow abv BL Creek	kaf	27.5	22.1	18.0	15.6	13.5	16.1	23.1	70.4	93.2	60.9	37.7	27.2	425.3
Crowheart Gage Flow	kaf	33.4	23.6	19.5	17.1	14.9	17.6	24.6	71.9	98.5	97.5	93.5	78.9	591.1
Flow Below Div Dam	kaf	21.9	23.6	19.5	17.1	14.9	17.6	4.7	21.9	27.2	30.3	24.8	18.3	241.8
Gain/Return Flow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	4.8	7.4	7.1	7.4	6.1	5.4	38.2
Indian Irrigation	kaf	1.2	0.0	0.0	0.0	0.0	0.0	1.8	6.1	6.0	6.1	5.5	4.5	31.3
LeClair/Riverton	kaf	5.0	0.0	0.0	0.0	0.0	0.0	3.5	18.8	24.2	27.2	21.1	15.0	114.8
LeC/Riv Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Riverton Gage Flow	cfs	255.0	396.4	317.7	278.7	259.7	286.8	70.0	70.0	70.0	70.0	70.0	70.0	

Wyoming Canal		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Diversion	kaf	11.5	0.0	0.0	0.0	0.0	0.0	19.9	50.1	71.4	67.2	68.7	60.6	349.3
North Canal Flow	kaf	3.4	0.0	0.0	0.0	0.0	0.0	9.8	26.4	31.2	36.5	30.9	27.0	165.2
North Canal Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Pilot Butte Reservoir Operations — Initial Content 19.7 Kaf — Operating Limits: Max 29.9 Kaf, 5459.98 Ft.; Min 10.0 Kaf, 5433.49 Ft.

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	8.1	0.0	0.0	0.0	0.0	0.0	10.1	23.7	40.2	30.7	37.8	33.6	184.1
Power Generated	mwh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pilot Canal Release	kaf	3.4	0.0	0.0	0.0	0.0	0.0	6.7	28.0	33.1	43.9	37.4	33.3	185.8
Pilot Canal Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
End-month Content	kaf	24.2	24.0	23.9	23.8	23.7	23.5	26.7	22.1	28.7	15.0	15.0	15.0	
PBR Net Change	kaf	4.5	-0.2	-0.1	-0.1	-0.1	-0.2	3.2	-4.6	6.7	-13.7	0.0	0.0	-4.7
End-month Elevation	ft	5453.4	5453.1	5453.0	5452.9	5452.8	5452.5	5456.3	5450.8	5458.7	5441.3	5441.3	5441.3	

TABLE WYT10B

RIVERTON PROJECT OPERATING PLAN
Based on October 1 Inflow Estimates
2012 Most Probable Inflow Estimates

Bull Lake Reservoir Operations — Initial Content 93.0 Kaf — Operating Limits: Max 151.9 Kaf, 5804.82 Ft.; Min 20.0 Kaf, 5750.93 Ft.

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	6.0	3.3	2.4	2.6	1.5	1.9	2.6	29.8	63.3	49.7	20.2	10.2	193.5
Total Dam Release	kaf	5.9	1.5	1.5	1.5	1.4	1.5	1.5	20.9	33.3	35.0	41.8	44.7	190.6
Total Dam Release	cfs	96.	25.	25.	25.	25.	25.	25.	340.	560.	570.	679.	750.	
Excess Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9	33.3	35.0	0.0	0.0	89.3
End-month Content	kaf	93.1	94.9	95.8	96.9	96.9	97.3	98.4	107.3	137.2	151.9	130.3	95.9	
End-month Elevation	ft	5784.6	5785.2	5785.6	5786.0	5786.0	5786.1	5786.5	5789.8	5800.1	5804.8	5797.8	5785.6	
BLR Net Change	kaf	0.1	1.8	0.9	1.1	0.1	0.4	1.1	8.9	30.0	14.7	-21.6	-34.5	2.9

Wind River		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow abv BL Creek	kaf	33.5	24.3	18.4	16.1	14.7	17.1	26.7	108.0	169.6	115.2	53.8	33.0	630.4
Crowheart Gage Flow	kaf	39.4	25.8	19.9	17.6	16.1	18.6	28.2	128.9	202.9	150.2	95.6	77.7	821.0
Flow Below Div Dam	kaf	27.9	25.8	19.9	17.6	16.1	18.6	8.0	74.2	138.2	69.3	35.9	20.1	471.7
Gain/Return Flow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	4.8	7.4	7.1	7.4	6.1	5.4	38.2
Indian Irrigation	kaf	1.2	0.0	0.0	0.0	0.0	0.0	1.8	6.1	6.0	6.1	5.5	4.5	31.3
LeClair/Riverton	kaf	5.0	0.0	0.0	0.0	0.0	0.0	3.5	18.8	24.2	27.2	21.1	15.0	114.8
LeC/Riv Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Riverton Gage Flow	cfs	352.0	433.4	324.2	286.8	280.6	303.1	125.4	921.4	1936.4	705.4	250.0	100.0	

Wyoming Canal		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Diversion	kaf	11.5	0.0	0.0	0.0	0.0	0.0	20.2	54.7	64.7	80.9	59.7	57.6	349.3
North Canal Flow	kaf	3.4	0.0	0.0	0.0	0.0	0.0	9.8	26.4	31.2	36.5	30.9	27.0	165.2
North Canal Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Pilot Butte Reservoir Operations — Initial Content 19.7 Kaf — Operating Limits: Max 29.9 Kaf, 5459.98 Ft.; Min 10.0 Kaf, 5433.49 Ft.

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	8.1	0.0	0.0	0.0	0.0	0.0	10.4	28.3	33.5	44.4	28.8	30.6	184.1
Power Generated	mwh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pilot Canal Release	kaf	3.4	0.0	0.0	0.0	0.0	0.0	6.7	28.0	33.1	43.9	37.4	33.3	185.8
Pilot Canal Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
End-month Content	kaf	24.2	24.0	23.9	23.8	23.7	23.5	27.0	27.0	27.0	27.0	18.0	15.0	
PBR Net Change	kaf	4.5	-0.2	-0.1	-0.1	-0.1	-0.2	3.5	0.0	0.0	0.0	-9.0	-3.0	-4.7
End-month Elevation	ft	5453.4	5453.1	5453.0	5452.9	5452.8	5452.5	5456.7	5456.7	5456.7	5456.7	5445.5	5441.3	

TABLE WYT10C

RIVERTON PROJECT OPERATING PLAN
Based on October 1 Inflow Estimates
2012 Reasonable Maximum Inflow Estimates

Bull Lake Reservoir Operations — Initial Content 93.0 Kaf — Operating Limits: Max 151.9 Kaf, 5804.82 Ft. Min 20.0 Kaf, 5750.93 Ft.

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	6.3	3.6	2.7	2.8	1.8	2.2	4.6	28.4	87.5	76.8	32.7	12.2	261.6
Total Dam Release	kaf	5.9	1.5	1.5	1.5	1.4	1.5	1.5	26.4	57.0	59.5	53.5	44.2	255.5
Total Dam Release	cfs	96.	25.	25.	25.	25.	25.	25.	429.	958.	968.	870.	743.	
Excess Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4	57.0	59.5	0.0	0.0	142.8
End-month Content	kaf	93.4	95.5	96.6	97.9	98.3	98.9	102.0	104.1	134.6	151.9	131.1	99.1	
End-month Elevation	ft	5784.7	5785.5	5785.9	5786.4	5786.5	5786.7	5787.9	5788.6	5799.2	5804.8	5798.1	5786.8	
BLR Net Change	kaf	0.4	2.1	1.2	1.3	0.4	0.7	3.1	2.0	30.5	17.3	-20.8	-32.0	6.1

Wind River		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow abv BL Creek	kaf	34.8	25.0	20.5	18.8	16.3	20.0	25.2	113.9	312.9	185.4	80.8	45.8	899.4
Crowheart Gage Flow	kaf	40.7	26.5	22.0	20.3	17.7	21.5	26.7	140.3	369.9	244.9	134.3	90.0	1154.9
Flow Below Div Dam	kaf	29.2	26.5	22.0	20.3	17.7	21.5	6.5	85.6	305.2	164.0	67.6	39.4	805.6
Gain/Return Flow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	4.8	7.4	7.1	7.4	6.1	5.4	38.2
Indian Irrigation	kaf	1.2	0.0	0.0	0.0	0.0	0.0	1.8	6.1	6.0	6.1	5.5	4.5	31.3
LeClair/Riverton	kaf	5.0	0.0	0.0	0.0	0.0	0.0	3.2	16.9	21.8	24.5	19.0	13.5	103.9
LeC/Riv Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Riverton Gage Flow	cfs	374.0	445.1	358.4	330.8	308.4	350.3	105.2	1136.7	4782.6	2288.6	800.0	450.0	

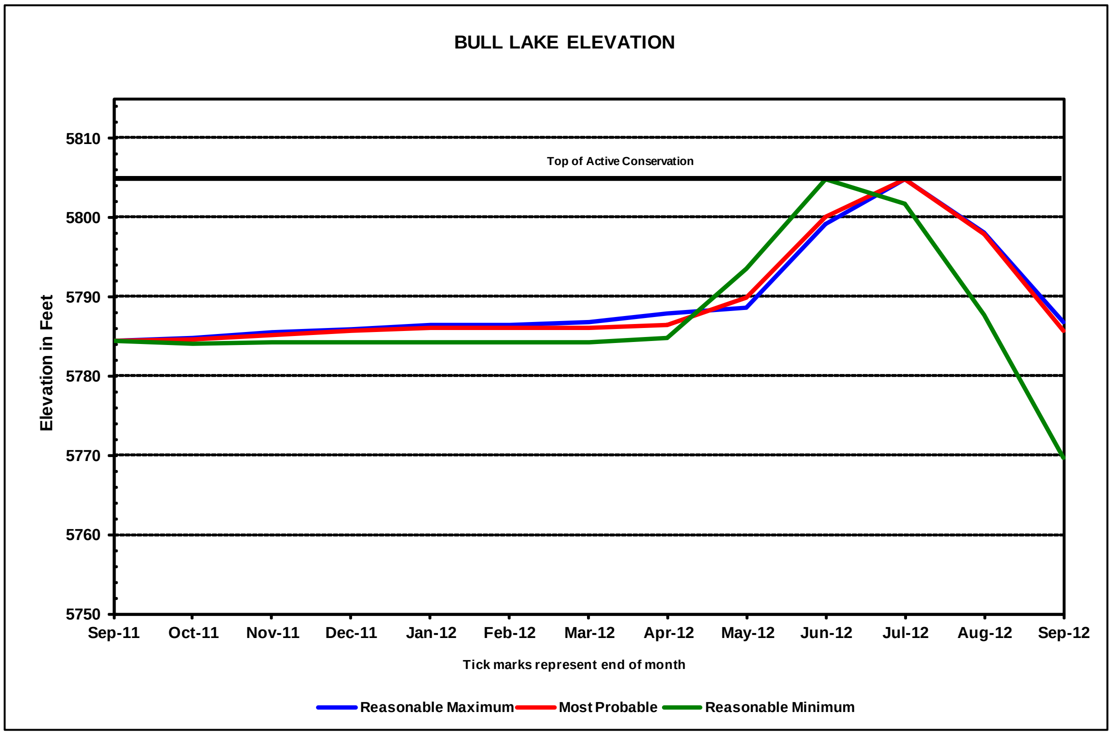
Wyoming Canal		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Diversion	kaf	11.5	0.0	0.0	0.0	0.0	0.0	20.2	54.7	64.7	80.9	66.7	50.6	349.3
North Canal Flow	kaf	3.4	0.0	0.0	0.0	0.0	0.0	9.8	26.4	31.2	36.5	30.9	27.0	165.2
North Canal Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

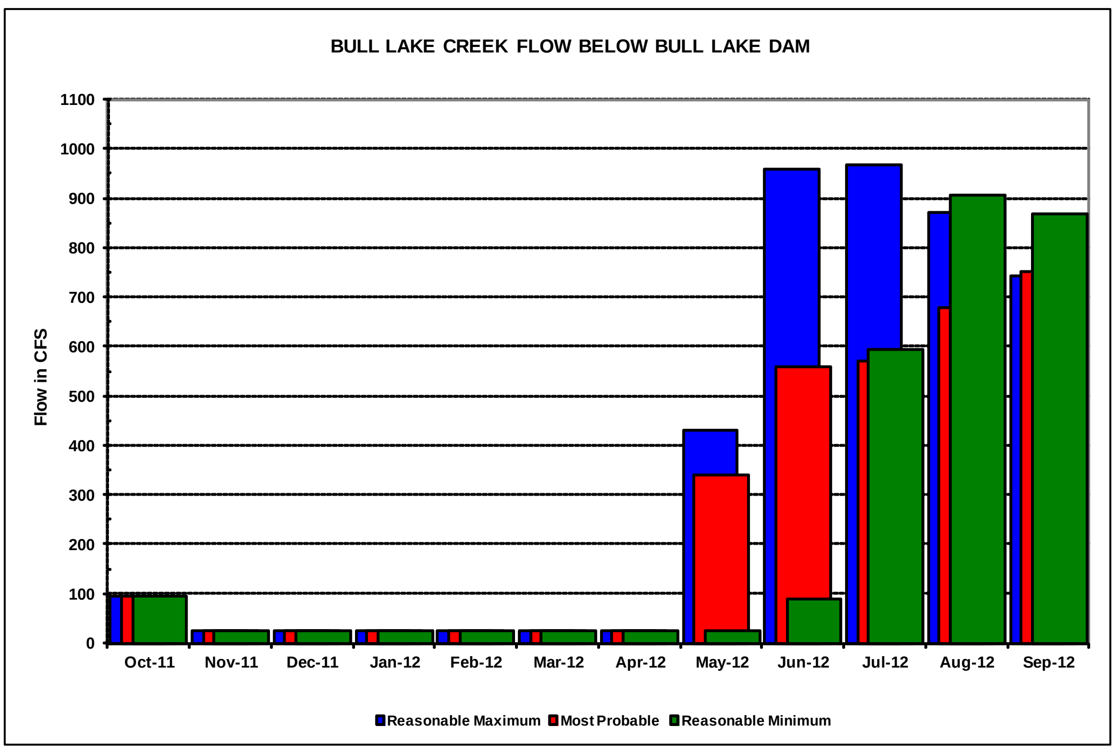
Pilot Butte Reservoir Operations — Initial Content 19.7 Kaf — Operating Limits: Max 29.9 Kaf, 5459.98 Ft. Min 10.0 Kaf, 5433.49 Ft.

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	8.1	0.0	0.0	0.0	0.0	0.0	10.4	28.3	33.5	44.4	35.8	23.6	184.1
Power Generated	mwh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pilot Canal Release	kaf	3.4	0.0	0.0	0.0	0.0	0.0	6.7	28.0	33.1	43.9	37.4	33.3	185.8
Pilot Canal Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
End-month Content	kaf	24.2	24.0	23.9	23.8	23.7	23.5	27.0	27.0	27.0	27.0	25.0	15.0	
PBR Net Change	kaf	4.5	-0.2	-0.1	-0.1	-0.1	-0.2	3.5	0.0	0.0	0.0	-2.0	-10.0	-4.7
End-month Elevation	ft	5453.4	5453.1	5453.0	5452.9	5452.8	5452.5	5456.7	5456.7	5456.7	5456.7	5454.3	5441.3	

FIGURE WYG6

BULL LAKE RESERVOIR





BOYSEN RESERVOIR and POWERPLANTS

Three operating plans were prepared for water year 2012 to show the operations of Boysen Reservoir which could occur under various runoff conditions. The operations for the three runoff conditions are shown in Table WYT11 and Figure WYG7. These plans are presented only to show the probable limits of operations and therefore, actual conditions and operations could vary widely from the most probable plan.

The operating objectives at Boysen Dam and Reservoir are to provide water for irrigation, municipal, and industrial use, and power generation; provide flood control in cooperation with the Corps of Engineers; and enhance fish, wildlife, and recreation opportunities in both the reservoir and the Wind/Bighorn River.

Irrigation Season Release

During the irrigation season, water releases from Boysen Reservoir are made to satisfy all downstream senior water rights and storage contract commitments. Generally, demands for downstream senior water rights are met with a reservoir release between 900 and 1,200 cfs. Releases above what is required to meet irrigation demands may be made to manage reservoir levels and generate power.

Non-irrigation Season Release

During the non-irrigation season, releases are made to produce power, enhance the river and reservoir fishery, and provide storage space for the expected spring runoff or conserve storage if the reservoir is not expected to fill. Winter releases are generally in the range between 400 cfs and 1,150 cfs, depending on reservoir conditions going into the winter. The Wyoming Game and Fish Department considers 800 cfs to be the preferred fishery flow from October through February and flows below 600 cfs to be detrimental to the river fishery. A release of approximately 1,150 cfs can be made through one unit at Boysen Powerplant. By releasing less than the capacity of one powerplant unit, annual maintenance can be performed on the other unit during the winter months.

General Operating Procedures

(1) October - February: Releases of water for power generation are scheduled to evacuate storage while assuring an adequate water supply for the upcoming irrigation season. It is desirable to maintain a uniform release during November through February to reduce the risk of flooding due to river ice.

(2) March - July: Based upon monthly water supply forecasts and as soon as river ice conditions allow, releases are scheduled to meet the irrigation demand as a minimum. Greater releases may be made if necessary to eliminate or minimize a spill, with the objective of filling the reservoir to elevation 4724.50 feet (731,841 AF) by the end of July. Depending on inflows, attempts will be made to provide a reservoir level of at least elevation 4707.00 feet from the end of May through the end of August for recreational boating access. For the spawning of rainbow trout it is

desirable to have stable or slightly rising river flows from mid-March through early June. When conditions are suitable and without affecting power operations, attempts will be made to limit the drop in reservoir level to 2 feet or less during the reservoir fish spawn and hatch period (which begins in March and ends in May). A rising pool is desirable during this period.

(3) August - September: As soon as storage has peaked, water releases are scheduled to meet the irrigation demand and generate power. Releases above what is needed to meet irrigation demand may be made in order to generate power and prevent the need to release water through the spillway gates if inflow conditions warrant.

2012 Operating Plans

At the beginning of water year 2012, storage was 691,545 AF at elevation 4722.38 feet. This was 115 percent of average and about 52,326 AF more than the reservoir held at the beginning of water year 2011. Projected inflows for all months of water year 2012 under most probable inflow conditions are estimated to be median flows, or flows which have historically been exceeded 50 percent of the time. A release of 950 cfs is scheduled for the months of October through March. In order to replace a transformer at Boysen Powerplant, both units will be off-line from October through March with all releases during that period made through the Hollow-Jet Valve. Under most probable inflow conditions, end of month reservoir content is expected to peak in July with 732,000 AF at reservoir elevation 4724.50 feet. The reservoir is expected to fill if most probable or greater inflows are realized. If reasonable minimum condition inflows occurred during each month of water year 2012 the reservoir level would decline during each month of the water year except June when the projected inflow is expected to be slightly more than the release.

Reasonable minimum condition inflows are estimated to be lower decile flows for all months in water year 2012. Lower decile flows are flows which have historically been exceeded 90 percent of the time.

Under reasonable maximum inflow conditions, upper decile flows are expected for all months in water year 2012. Upper decile flows are flows which have historically been exceeded 10 percent of the time.

Winter releases under minimum and maximum inflow scenarios are the same as under the most probable condition. This is due to the fact that a release which meets the operating objectives under the range of inflows which could be expected to occur needs to be set prior to the time when the river might freeze. At the time the winter release is set, very limited information is available on snowpack and what inflows might be during the snowmelt runoff period. It must be assumed that releases cannot be changed significantly from mid-December through mid-March as the changes could cause flooding downstream of the reservoir if ice conditions are present on the river.

Power unit maintenance outages for the Boysen Powerplant are scheduled as shown in Table WYT13.

TABLE WYT11

BOYSEN RESERVOIR OPERATING PLAN - Based on October 1 Inflow Estimates
2012 Reasonable Minimum Inflow Estimates

Boysen Reservoir — Initial Cont 691.5 kaf, Elev 4722.38 ft; Maximum Cont 892.2 kaf, Elev 4732.20 ft; Minimum Cont 219.2 kaf, Elev 4685.00 ft

Boysen Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	40.0	41.8	35.0	32.4	31.6	45.7	41.5	67.0	76.5	39.3	25.2	29.8	505.8
Monthly Inflow	cfs	651	702	569	527	549	743	697	1090	1286	639	410	501	
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	44.6	67.6	69.9	76.9	69.2	59.5	387.7
Bypass/Spill	kaf	58.4	56.6	58.4	58.5	54.7	58.4	0.0	0.0	0.0	0.0	0.0	0.0	345.0
Total Release	kaf	58.4	56.6	58.4	58.5	54.7	58.4	44.6	67.6	69.9	76.9	69.2	59.5	732.7
Total Release	cfs	950	951	950	951	951	950	750	1099	1175	1251	1125	1000	
End-Month Content	kaf	673.1	658.3	634.9	608.8	585.7	573.0	569.9	569.3	575.9	538.3	494.3	464.6	
End-Month Elevation	ft	4721.38	4720.56	4719.23	4717.69	4716.27	4715.47	4715.27	4715.23	4715.65	4713.18	4710.11	4707.92	
Net Change Content	kaf	-18.4	-14.8	-23.4	-26.1	-23.1	-12.7	-3.1	-0.6	6.6	-37.6	-44.0	-29.7	-226.9

Boysen Power Plant	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	44.6	67.6	69.9	76.9	69.2	59.5	387.7
Turbine Release	cfs	0	0	0	0	0	0	750	1099	1175	1251	1125	1000	
Generation	gwh	0.000	0.000	0.000	0.000	0.000	0.000	3.757	5.650	5.846	6.361	5.579	4.654	31.847
Max Generation	gwh	0.000	0.000	0.000	0.000	0.000	0.000	11.520	11.904	11.520	11.904	11.904	11.520	70.272
% Max Generation	%	0	0	0	0	0	0	33	47	51	53	47	40	
Ave kwh/af								84	84	84	83	81	78	82
End-Month Power Cap	mw	16	16	16	16	16	16	16	16	16	16	15	14	

BOYSEN RESERVOIR OPERATING PLAN - Based on October 1 Inflow Estimates
2012 Most Probable Inflow Estimates

Boysen Reservoir — Initial Cont 691.5 kaf, Elev 4722.38 ft; Maximum Cont 892.2 kaf, Elev 4732.20 ft; Minimum Cont 219.2 kaf, Elev 4685.00 ft

Boysen Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	45.0	47.0	40.0	37.3	38.9	50.6	51.0	153.9	277.9	141.8	68.3	56.7	1008.4
Monthly Inflow	cfs	732	790	651	607	676	823	857	2503	4670	2306	1111	953	
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	67.4	142.2	133.2	132.2	98.3	59.5	632.8
Bypass/Spill	kaf	58.4	56.5	58.4	58.4	54.7	58.4	0.0	0.0	23.3	0.0	0.0	0.0	368.1
Total Release	kaf	58.4	56.5	58.4	58.4	54.7	58.4	67.4	142.2	156.5	132.2	98.3	59.5	1000.9
Total Release	cfs	950	950	950	950	951	950	1133	2313	2630	2150	1599	1000	
End-Month Content	kaf	678.1	668.6	650.2	629.1	613.3	605.5	589.1	600.8	722.2	731.8	701.8	699.0	
End-Month Elevation	ft	4721.65	4721.13	4720.10	4718.89	4717.96	4717.49	4716.49	4717.21	4724.00	4724.50	4722.93	4722.78	
Net Change Content	kaf	-13.4	-9.5	-18.4	-21.1	-15.8	-7.8	-16.4	11.7	121.4	9.6	-30.0	-2.8	7.5

Boysen Power Plant	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	67.4	142.2	133.2	132.2	98.3	59.5	632.8
Turbine Release	cfs	0	0	0	0	0	0	1133	2313	2239	2150	1599	1000	
Generation	gwh	0.000	0.000	0.000	0.000	0.000	0.000	5.727	11.881	11.517	11.868	8.837	5.353	55.183
Max Generation	gwh	0.000	0.000	0.000	0.000	0.000	0.000	11.520	11.904	11.520	11.904	11.904	11.520	70.272
% Max Generation	%	0	0	0	0	0	0	50	100	100	100	74	46	
Ave kwh/af								85	84	86	90	90	90	87
End-Month Power Cap	mw	16	16	16	16	16	16	16	16	16	16	16	16	

BOYSEN RESERVOIR OPERATING PLAN - Based on October 1 Inflow Estimates
2012 Reasonable Maximum Inflow Estimates

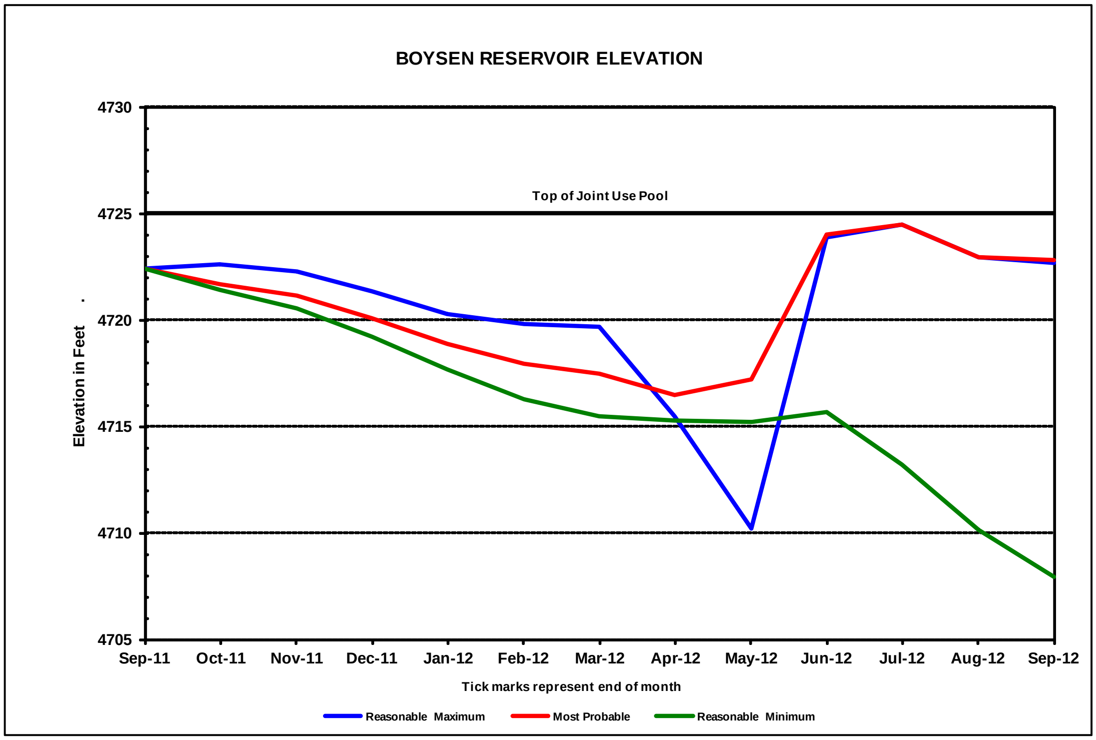
Boysen Reservoir — Initial Cont 691.5 kaf, Elev 4722.38 ft; Maximum Cont 892.2 kaf, Elev 4732.20 ft; Minimum Cont 219.2 kaf, Elev 4685.00 ft

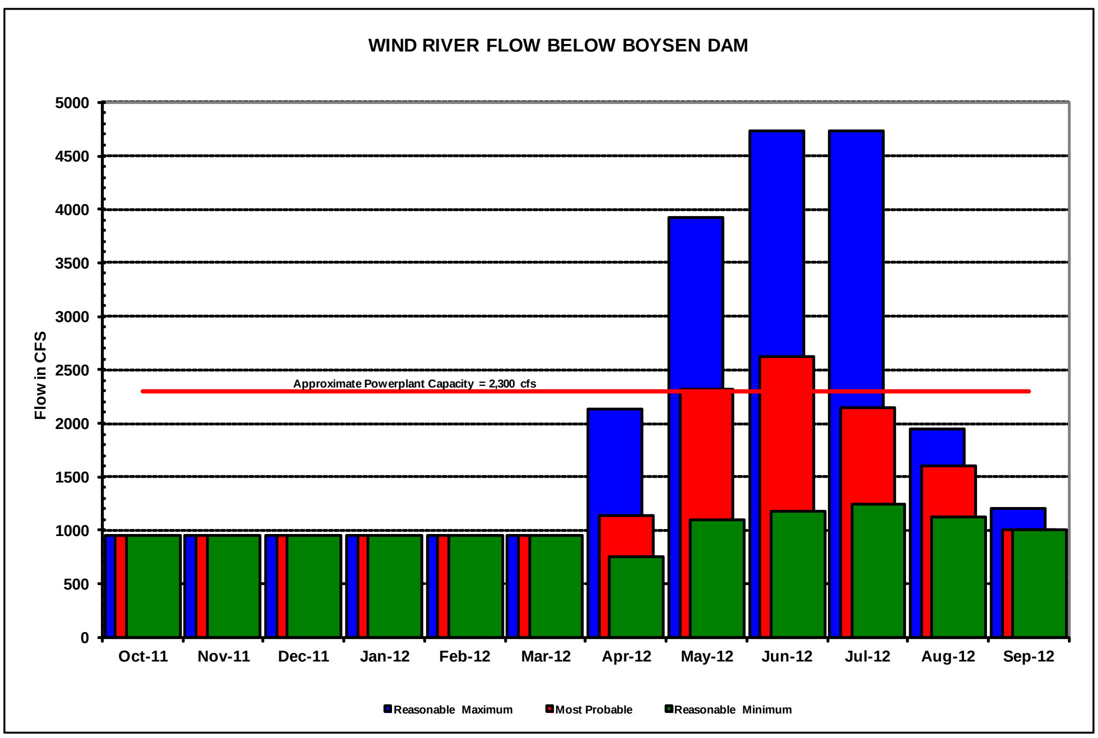
Boysen Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	62.7	50.6	40.7	40.1	45.6	55.7	58.7	163.3	505.3	303.0	90.0	67.6	1483.3
Monthly Inflow	cfs	1020	850	662	652	793	906	986	2656	8492	4928	1464	1136	
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	127.2	140.1	138.4	135.5	120.0	72.0	733.2
Bypass/Spill	kaf	58.4	56.5	58.4	58.5	54.7	58.4	0.0	101.0	143.0	155.2	0.0	0.0	744.1
Total Release	kaf	58.4	56.5	58.4	58.5	54.7	58.4	127.2	241.1	281.4	290.7	120.0	72.0	1477.3
Total Release	cfs	950	950	950	951	951	950	2138	3921	4729	4728	1952	1210	
End-Month Content	kaf	695.8	689.9	672.2	653.8	644.7	642.0	573.5	495.7	719.6	731.9	701.9	697.5	
End-Month Elevation	ft	4722.61	4722.29	4721.33	4720.30	4719.79	4719.64	4715.50	4710.21	4723.86	4724.50	4722.93	4722.70	
Net Change Content	kaf	4.3	-5.9	-17.7	-18.4	-9.1	-2.7	-68.5	-77.8	223.9	12.3	-30.0	-4.4	6.0

Boysen Power Plant	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	127.2	140.1	138.4	135.5	120.0	72.0	733.2
Turbine Release	cfs	0	0	0	0	0	0	2138	2279	2326	2204	1952	1210	
Generation	gwh	0.000	0.000	0.000	0.000	0.000	0.000	10.730	11.057	11.412	11.902	10.744	6.454	62.299
Max Generation	gwh	0.000	0.000	0.000	0.000	0.000	0.000	11.520	11.904	11.520	11.904	11.904	11.520	70.272
% Max Generation	%	0	0	0	0	0	0	93	93	99	100	90	56	
Ave kwh/af								84	79	82	88	90	90	85
End-Month Power Cap	mw	16	16	16	16	16	16	16	14	16	16	16	16	

FIGURE WYG7

BOYSEN RESERVOIR





BUFFALO BILL RESERVOIR and POWERPLANTS

Three operating plans were prepared for water year 2012 to show the operations of Buffalo Bill Reservoir which could occur under various runoff conditions. The operations for the three runoff conditions are shown in Table WYT12A, WYT12B, WYT12C, and Figure WYG8. These plans were prepared only to show the probable limits of operations, therefore, actual conditions and operations could vary widely from the most probable plan.

Normal Operating Procedures

At the end of the irrigation season, releases will be adjusted with the objective of filling the reservoir to elevation 5393.50 feet (646,565 AF) while meeting the release criteria of the ***Buffalo Bill Reservoir Enlargement Winter Release Operation Agreement***. Under the Agreement, Buffalo Bill Reservoir will be operated to insure that a minimum flow of 100 cfs is provided in the river below the dam at all times. Additional winter releases beyond the 100 cfs minimum release up to a combined total of 350 cfs in the river below Buffalo Bill Powerplant will be provided based on the criteria set forth in the Agreement.

Reservoir releases to meet downstream irrigation requirements will, to the extent possible, be made through the most efficient power turbines available, after meeting winter flow requirements. A release of at least 100 cfs will be made through the Shoshone Powerplant, whenever the powerplant is available, to provide the required river flow directly below the dam. If the Shoshone Powerplant is not available, the release will be made through the jetflow valve at the Dam.

During irrigation season, releases are determined by the requirements for irrigation, and municipal and industrial demand. If snow conditions, inflow, and reservoir content indicate an assured fill of the reservoir, additional releases may be required after the start of the spring runoff to provide flood control and make optimum use of the water for power generation. An attempt is made to maintain a release of 7,000 cfs or less during the runoff season and also assure that outflow is less than inflow at all times of flood rate inflow.

2012 Operating Plans

Inflow to Buffalo Bill Reservoir during August and September of 2011 was above average but trending toward average. Projected flows for all months of water year 2012 are estimated to be median flows, or flows which have historically been exceeded 50 percent of the time.

The reasonable minimum inflows are estimated to equal lower decile flows for all months of water year 2012. A lower decile flow is a flow which has historically been exceeded 90 percent of the time.

Upper decile flows, flows which have historically been exceeded 10 percent of the time are projected for all months of water year 2012 under reasonable maximum conditions.

At the beginning of water year 2012, storage in Buffalo Bill Reservoir was 482,678 AF at elevation 5372.04 feet. This was about 3,000 AF less water than the reservoir held at the beginning of water year 2011. Winter releases under minimum and maximum inflow scenarios are the same as under most probable conditions. Based on the criteria set forth in the ***Buffalo Bill Reservoir Enlargement Winter Release Operation Agreement***, the release from Buffalo Bill Dam through the winter will be 350 cfs. Ice in the Shoshone River can limit Reclamation's ability to change releases during the winter because of possible flooding due to ice jams, particularly near Lovell, Wyoming.

The Shoshone, Buffalo Bill, Heart Mountain, and Spirit Mountain Powerplants will all be available for power generation in water year 2012. Releases from Buffalo Bill Reservoir will be dependent upon the most efficient operation of all the powerplants while providing the required flow in the Shoshone River.

Under the most probable runoff plan, total generation from all the plants is expected to be 149,958,000 kilowatt hours (kWh). Total generation with reasonable minimum inflows is expected to be 131,008,000 kWh while generation is expected to total 163,367,000 kWh under the plan with reasonable maximum inflows.

Power unit maintenance outages for the Shoshone, Buffalo Bill, Heart Mountain, and Spirit Mountain Powerplants are scheduled as shown in Table WYT13.

TABLE WYT12A

BUFFALO BILL RESERVOIR OPERATING PLAN
Based on October 1 Inflow Estimates
2012 Reasonable Minimum Inflow Estimates

Buffalo Bill Reservoir — Initial Cont 479.3 kaf, Elev 5372.15 ft — Maximum Cont 643.1 kaf, Elev 5393.59 ft — Minimum Cont 41.8 kaf, Elev 5259.64 ft

Buffalo Bill Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	24.0	20.0	14.5	12.8	11.7	13.0	38.8	145.9	199.9	71.7	25.4	20.6	598.3
Shoshone Release	kaf	12.2	11.9	12.3	6.1	5.8	6.1	6.0	6.1	6.0	6.2	6.2	6.0	90.9
Non-Power Release	kaf	3.0	8.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7
Total Flow Below Dam	kaf	15.2	20.8	14.1	6.1	5.8	6.1	6.0	6.1	6.0	6.2	6.2	6.0	104.6
Buffalo Bill Release	kaf	21.8	0.0	7.4	15.4	14.3	15.4	14.8	53.3	50.3	51.8	52.8	42.7	340.0
Municipal Delivery	kaf	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3.6
Heart Mtn Release	kaf	9.3	0.0	0.0	0.0	0.0	0.0	3.6	5.5	6.4	12.4	4.0	1.3	42.5
Heart Mtn Delivery	kaf	15.0	0.0	0.0	0.0	0.0	0.0	7.0	36.0	42.0	48.0	41.0	32.0	221.0
Total Outflow	kaf	61.6	21.1	21.8	21.8	20.4	21.8	31.7	101.2	105.0	118.7	104.3	82.3	711.7
Bypass/Spill	kaf	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
End-Month Targets	kaf										626.0		481.6	
End-Month Content	kaf	441.7	440.6	433.3	424.3	415.6	406.8	413.9	458.6	553.5	506.5	427.6	365.9	
Est Total Storage	kaf	445.1	444.0	436.7	427.7	419.0	410.2	417.3	462.0	556.9	509.9	431.0	369.3	
End-Month Elevation	ft	5366.85	5366.70	5365.64	5364.32	5363.01	5361.67	5362.75	5369.26	5382.15	5375.87	5364.81	5355.30	
Net Change Content	kaf	-37.6	-1.1	-7.3	-9.0	-8.7	-8.8	7.1	44.7	94.9	-47.0	-78.9	-61.7	-113.4
Flow Below BB Pwr	kaf	37.0	20.8	21.5	21.5	20.1	21.5	20.8	59.4	56.3	58.0	59.0	48.7	444.6
Flow Below BB Pwr	cfs	602	350	350	350	349	350	350	966	946	943	960	818	
Spring Inflow	kaf	3.7	3.6	3.7	3.7	3.5	3.7	3.6	3.7	3.6	3.7	3.7	3.6	43.8
Passing Cody Gage	kaf	50.0	24.4	25.2	25.2	23.6	25.2	28.0	68.6	66.3	74.1	66.7	53.6	530.9
Passing Cody Gage	cfs	813	410	410	410	410	410	471	1116	1114	1205	1085	901	

Shoshone Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Shoshone Release	kaf	12.2	11.9	12.3	6.1	5.8	6.1	6.0	6.1	6.0	6.2	6.2	6.0	90.9
Generation	gwh	2.237	2.153	2.224	1.101	1.040	1.088	1.070	1.106	1.132	1.185	1.145	1.060	16.541
Max Generation	gwh	2.232	2.160	2.232	2.232	2.088	2.232	2.160	2.232	2.160	2.232	2.232	2.160	26.352
% Max Generation		100	100	100	49	50	49	50	50	52	53	51	49	
Ave kwh/af		183	181	181	180	179	178	178	181	189	191	185	177	182
End-Month Power Cap	mw	3	3	3	3	3	3	3	3	3	3	3	3	

Buffalo Bill Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Buffalo Bill Release	kaf	21.8	0.0	7.4	15.4	14.3	15.4	14.8	53.3	50.3	51.8	52.8	42.7	340.0
Generation	gwh	5.866	0.000	2.008	4.155	3.841	4.119	3.942	13.282	12.820	13.110	13.298	10.708	87.149
Max Generation	gwh	5.879	0.000	2.009	13.392	12.528	13.392	12.960	13.392	12.960	13.392	13.392	12.960	126.256
% Max Generation		100	0	100	31	31	31	30	99	99	98	99	83	
Ave kwh/af		269		271	270	269	267	266	249	255	253	252	251	256
End-Month Power Cap	mw	8	0	3	18	18	18	18	18	18	18	18	18	

Spirit Mtn Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Spirit Mtn Release	kaf	16.6	0.0	0.0	0.0	0.0	0.0	10.6	34.4	33.3	34.4	34.4	33.3	197.0
Generation	gwh	1.674	0.000	0.000	0.000	0.000	0.000	1.032	2.834	2.937	2.969	2.928	2.770	17.144
Max Generation	gwh	1.674	0.000	0.000	0.000	0.000	0.000	1.620	3.348	3.240	3.348	3.348	3.240	19.818
% Max Generation		100	0	0	0	0	0	64	85	91	89	87	85	
Ave kwh/af		101						97	82	88	86	85	83	87
End-Month Power Cap	mw	2	0	0	0	0	0	2	4	4	4	4	4	

Heart Mtn Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Heart Mtn Release	kaf	9.3	0.0	0.0	0.0	0.0	0.0	3.6	5.5	6.4	12.4	4.0	1.3	42.5
Generation	gwh	2.226	0.000	0.000	0.000	0.000	0.000	0.862	1.317	1.532	2.968	0.958	0.311	10.174
Max Generation	gwh	2.232	0.000	0.000	0.000	0.000	0.000	2.160	4.464	4.320	4.464	4.464	4.320	26.424
% Max Generation		100	0	0	0	0	0	40	30	35	66	21	7	
Ave kwh/af		239						239	239	239	239	240	239	239
End-Month Power Cap	mw	3	0	0	0	0	0	3	6	6	6	6	6	

Total Generation	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Generation	gwh	12.003	2.153	4.232	5.256	4.881	5.207	6.906	18.539	18.421	20.232	18.329	14.849	131.008
End-month Power Cap	mw	16	3	6	21	21	21	26	31	31	31	31	31	

TABLE WYT12B

BUFFALO BILL RESERVOIR OPERATING PLAN
Based on October 1 Inflow Estimates
2012 Most Probable Inflow Estimates

Buffalo Bill Reservoir — Initial Cont 479.3 kaf, Elev 5372.15 ft — Maximum Cont 643.1 kaf, Elev 5393.59 ft — Minimum Cont 41.8 kaf, Elev 5259.64 ft

Buffalo Bill Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	26.9	22.0	17.1	15.2	13.4	15.5	33.3	139.3	316.8	188.3	51.8	28.5	868.1
Shoshone Release	kaf	12.2	11.9	12.3	6.1	5.8	6.1	6.0	6.1	11.4	11.3	10.6	6.0	105.8
Non-Power Release	kaf	3.0	8.9	3.0	0.0	0.0	0.0	0.0	0.0	39.4	38.6	0.0	0.0	92.9
Total Flow Below Dam	kaf	15.2	20.8	15.3	6.1	5.8	6.1	6.0	6.1	50.8	49.9	10.6	6.0	198.7
Buffalo Bill Release	kaf	21.8	0.0	6.2	15.4	14.3	15.4	14.8	53.3	51.7	51.6	51.4	49.3	345.2
Municipal Delivery	kaf	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3.6
Heart Mtn Release	kaf	9.3	0.0	0.0	0.0	0.0	0.0	3.6	14.0	18.0	18.6	18.6	15.2	97.3
Heart Mtn Delivery	kaf	15.0	0.0	0.0	0.0	0.0	0.0	7.0	36.0	42.0	48.0	41.0	32.0	221.0
Total Outflow	kaf	61.6	21.1	21.8	21.8	20.4	21.8	31.7	109.7	162.8	168.4	121.9	102.8	865.8
Bypass/Spill	kaf	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.4	38.6	0.0	0.0	81.0
End-Month Targets	kaf										626.0		481.6	
End-Month Content	kaf	444.6	445.5	440.8	434.2	427.2	420.9	422.5	452.1	606.1	626.0	555.9	481.6	
Est Total Storage	kaf	448.0	448.9	444.2	437.6	430.6	424.3	425.9	455.5	609.5	629.4	559.3	485.0	
End-Month Elevation	ft	5367.27	5367.40	5366.72	5365.77	5364.75	5363.81	5364.05	5368.34	5388.97	5391.47	5382.47	5372.46	
Net Change Content	kaf	-34.7	0.9	-4.7	-6.6	-7.0	-6.3	1.6	29.6	154.0	19.9	-70.1	-74.3	2.3
Flow Below BB Pwr	kaf	37.0	20.8	21.5	21.5	20.1	21.5	20.8	59.4	102.5	101.5	62.0	55.3	543.9
Flow Below BB Pwr	cfs	602	350	350	350	349	350	350	966	1723	1651	1008	929	
Spring Inflow	kaf	3.7	3.6	3.7	3.7	3.5	3.7	3.6	3.7	3.6	3.7	3.7	3.6	43.8
Passing Cody Gage	kaf	50.0	24.4	25.2	25.2	23.6	25.2	28.0	77.1	124.1	123.8	84.3	74.1	685.0
Passing Cody Gage	cfs	813	410	410	410	410	410	471	1254	2086	2013	1371	1245	

Shoshone Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Shoshone Release	kaf	12.2	11.9	12.3	6.1	5.8	6.1	6.0	6.1	11.4	11.3	10.6	6.0	105.8
Generation	gwh	2.239	2.158	2.232	1.106	1.048	1.097	1.078	1.106	2.160	2.240	2.089	1.140	19.693
Max Generation	gwh	2.232	2.160	2.232	2.232	2.088	2.232	2.160	2.232	2.160	2.232	2.232	2.160	26.352
% Max Generation		100	100	100	50	50	49	50	50	100	100	94	53	
Ave kwh/af		184	181	181	181	181	180	180	181	189	198	197	190	186
End-Month Power Cap	mw	3	3	3	3	3	3	3	3	3	3	3	3	

Buffalo Bill Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Buffalo Bill Release	kaf	21.8	0.0	6.2	15.4	14.3	15.4	14.8	53.3	51.7	51.6	51.4	49.3	345.2
Generation	gwh	5.870	0.000	1.688	4.172	3.862	4.145	3.965	13.099	12.956	13.384	13.398	12.693	89.232
Max Generation	gwh	5.866	0.000	1.674	13.392	12.528	13.392	12.960	13.392	12.960	13.392	13.392	12.960	125.908
% Max Generation		100	0	101	31	31	31	31	98	100	100	100	98	
Ave kwh/af		269		272	271	270	269	268	246	251	259	261	257	258
End-Month Power Cap	mw	8	0	2	18	18	18	18	18	18	18	18	18	

Spirit Mtn Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Spirit Mtn Release	kaf	16.6	0.0	0.0	0.0	0.0	0.0	10.6	34.4	33.3	34.4	34.4	33.3	197.0
Generation	gwh	1.678	0.000	0.000	0.000	0.000	0.000	1.049	2.710	2.816	3.219	3.244	3.024	17.740
Max Generation	gwh	1.674	0.000	0.000	0.000	0.000	0.000	1.620	3.348	3.240	3.348	3.348	3.240	19.818
% Max Generation		100	0	0	0	0	0	65	81	87	96	97	93	
Ave kwh/af		101						99	79	85	94	94	91	90
End-Month Power Cap	mw	2	0	0	0	0	0	2	4	5	5	5	4	

Heart Mtn Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Heart Mtn Release	kaf	9.3	0.0	0.0	0.0	0.0	0.0	3.6	14.0	18.0	18.6	18.6	15.2	97.3
Generation	gwh	2.226	0.000	0.000	0.000	0.000	0.000	0.862	3.351	4.309	4.453	4.453	3.639	23.293
Max Generation	gwh	2.232	0.000	0.000	0.000	0.000	0.000	2.160	4.464	4.320	4.464	4.464	4.320	26.424
% Max Generation		100	0	0	0	0	0	40	75	100	100	100	84	
Ave kwh/af		239						239	239	239	239	239	239	239
End-Month Power Cap	mw	3	0	0	0	0	0	3	6	6	6	6	6	

Total Generation	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Generation	gwh	12.013	2.158	3.920	5.278	4.910	5.242	6.954	20.266	22.241	23.296	23.184	20.496	149.958
End-month Power Cap	mw	16	3	5	21	21	21	26	31	32	32	32	31	

TABLE WYT12C

BUFFALO BILL RESERVOIR OPERATING PLAN
Based on October 1 Inflow Estimates
2012 Reasonable Maximum Inflow Estimates

Buffalo Bill Reservoir — Initial Cont 479.3 kaf, Elev 5372.15 ft — Maximum Cont 643.1 kaf, Elev 5393.59 ft — Minimum Cont 41.8 kaf, Elev 5259.64 ft

Buffalo Bill Reservoir	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	29.0	24.3	20.0	16.7	14.9	21.1	51.6	203.2	447.3	304.7	75.9	33.7	1242.4
Shoshone Release	kaf	12.2	11.9	12.3	6.1	5.8	6.1	7.8	12.5	11.6	11.4	11.4	6.0	115.1
Non-Power Release	kaf	3.0	8.9	3.0	0.0	0.0	0.0	0.0	56.4	166.9	142.0	28.5	0.0	408.7
Total Flow Below Dam	kaf	15.2	20.8	15.3	6.1	5.8	6.1	7.8	68.9	178.5	153.4	39.9	6.0	523.8
Buffalo Bill Release	kaf	21.8	0.0	6.2	15.4	14.3	15.4	50.4	55.8	52.4	52.0	51.5	49.4	384.6
Municipal Delivery	kaf	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	3.6
Heart Mtn Release	kaf	9.3	0.0	0.0	0.0	0.0	0.0	9.0	18.6	18.0	18.6	18.6	15.0	107.1
Heart Mtn Delivery	kaf	15.0	0.0	0.0	0.0	0.0	0.0	7.0	36.0	42.0	48.0	41.0	32.0	221.0
Total Outflow	kaf	61.6	21.1	21.8	21.8	20.4	21.8	74.5	179.6	291.2	272.3	151.3	102.7	1240.1
Bypass/Spill	kaf	3.0	0.0	0.0	0.0	0.0	0.0	0.0	56.4	166.9	142.0	28.5	0.0	396.8
End-Month Targets	kaf										626.0		481.6	
End-Month Content	kaf	446.7	449.9	448.1	443.0	437.5	436.8	413.9	437.5	593.6	626.0	550.6	481.6	
Est Total Storage	kaf	450.1	453.3	451.5	446.4	440.9	440.2	417.3	440.9	597.0	629.4	554.0	485.0	
End-Month Elevation	ft	5367.57	5368.02	5367.77	5367.04	5366.25	5366.15	5362.75	5366.25	5387.37	5391.47	5381.77	5372.46	
Net Change Content	kaf	-32.6	3.2	-1.8	-5.1	-5.5	-0.7	-22.9	23.6	156.1	32.4	-75.4	-69.0	2.3
Flow Below BB Pwr	kaf	37.0	20.8	21.5	21.5	20.1	21.5	58.2	124.7	230.9	205.4	91.4	55.4	908.4
Flow Below BB Pwr	cfs	602	350	350	350	349	350	978	2028	3880	3341	1486	931	
Spring Inflow	kaf	3.7	3.6	3.7	3.7	3.5	3.7	3.6	3.7	3.6	3.7	3.7	3.6	43.8
Passing Cody Gage	kaf	50.0	24.4	25.2	25.2	23.6	25.2	70.8	147.0	252.5	227.7	113.7	74.0	1059.3
Passing Cody Gage	cfs	813	410	410	410	410	410	1190	2391	4243	3703	1849	1244	

Shoshone Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Shoshone Release	kaf	12.2	11.9	12.3	6.1	5.8	6.1	7.8	12.5	11.6	11.4	11.4	6.0	115.1
Generation	gwh	2.240	2.162	2.240	1.112	1.054	1.106	1.403	2.228	2.165	2.239	2.232	1.139	21.320
Max Generation	gwh	2.232	2.160	2.232	2.232	2.088	2.232	2.160	2.232	2.160	2.232	2.232	2.160	26.352
% Max Generation		100	100	100	50	50	50	65	100	100	100	100	53	
Ave kwh/af		184	182	182	182	182	181	180	178	187	196	196	190	185
End-Month Power Cap	mw	3	3	3	3	3	3	3	3	3	3	3	3	

Buffalo Bill Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Buffalo Bill Release	kaf	21.8	0.0	6.2	15.4	14.3	15.4	50.4	55.8	52.4	52.0	51.5	49.4	384.6
Generation	gwh	5.873	0.000	1.692	4.187	3.879	4.171	12.952	13.389	12.957	13.383	13.383	12.705	98.571
Max Generation	gwh	5.879	0.000	1.701	13.392	12.528	13.392	12.960	13.392	12.960	13.392	13.392	12.960	125.948
% Max Generation		100	0	99	31	31	31	100	100	100	100	100	98	
Ave kwh/af		269		273	272	271	271	257	240	247	257	260	257	256
End-Month Power Cap	mw	8	0	2	18	18	18	18	18	18	18	18	18	

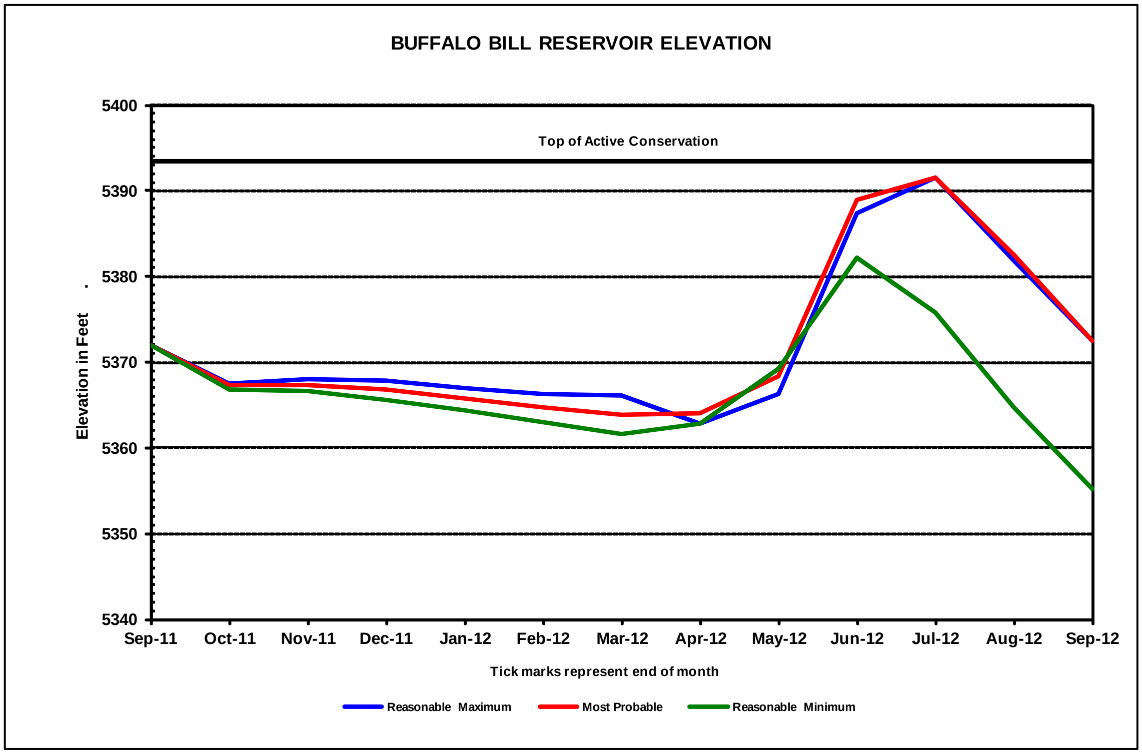
Spirit Mtn Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Spirit Mtn Release	kaf	16.5	0.0	0.0	0.0	0.0	0.0	16.0	34.4	33.3	34.4	34.4	33.3	202.3
Generation	gwh	1.670	0.000	0.000	0.000	0.000	0.000	1.447	2.540	2.748	3.186	3.231	3.015	17.837
Max Generation	gwh	1.674	0.000	0.000	0.000	0.000	0.000	1.620	3.348	3.240	3.348	3.348	3.240	19.818
% Max Generation		100	0	0	0	0	0	89	76	85	95	97	93	
Ave kwh/af		101						90	74	83	93	94	91	88
End-Month Power Cap	mw	2	0	0	0	0	0	2	4	5	5	4	4	

Heart Mtn Power	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Heart Mtn Release	kaf	9.3	0.0	0.0	0.0	0.0	0.0	9.0	18.6	18.0	18.6	18.6	15.0	107.1
Generation	gwh	2.226	0.000	0.000	0.000	0.000	0.000	2.154	4.453	4.309	4.453	4.453	3.591	25.639
Max Generation	gwh	2.232	0.000	0.000	0.000	0.000	0.000	2.160	4.464	4.320	4.464	4.464	4.320	26.424
% Max Generation		100	0	0	0	0	0	100	100	100	100	100	83	
Ave kwh/af		239						239	239	239	239	239	239	239
End-Month Power Cap	mw	3	0	0	0	0	0	3	6	6	6	6	6	

Total Generation	2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Generation	gwh	12.009	2.162	3.932	5.299	4.933	5.277	17.956	22.610	22.179	23.261	23.299	20.450	163.367
End-month Power Cap	mw	16	3	5	21	21	21	26	31	32	32	31	31	

FIGURE WYG8

BUFFALO BILL RESERVOIR



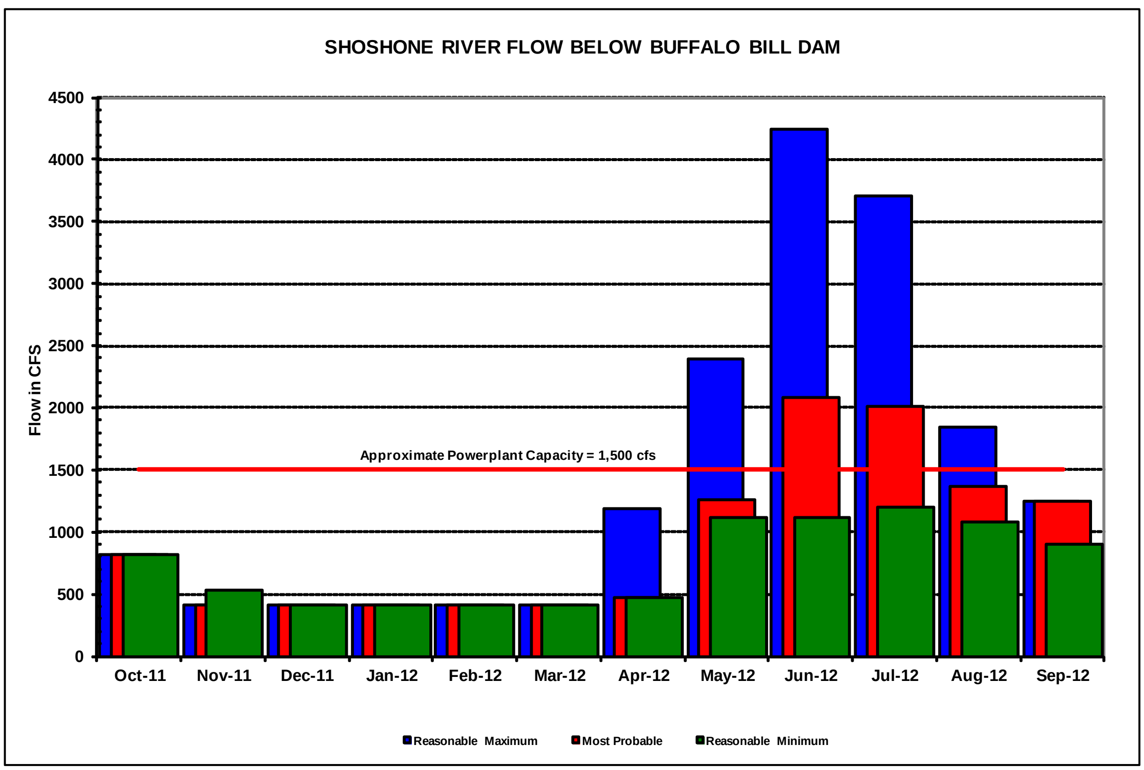


Table WYT13

WATER YEAR 2012 SCHEDULED OUTAGES FOR WYOMING POWERPLANTS

Facilities	Description of Work	Scheduled Dates
BOYSEN		
Unit 1	Annual Maintenance / Transformer Replacement Service Water Piping Replacement / Hi-Pot Test	10/01/11 - 03/31/12
Unit 2	Annual Maintenance / Transformer Replacement Service Water Piping Replacement / Hi-Pot Test	10/01/11 - 03/31/12
BUFFALO BILL		
Buffalo Bill Powerplant		
Unit 1	Shoshone Canyon Conduit Inspection	10/24/11 - 11/02/11
Unit 1	Annual Maintenance	11/14/11 - 11/23/11
Unit 2	Shoshone Canyon Conduit Inspection	10/24/11 - 11/02/11
Unit 2	Annual Maintenance	12/05/11 - 12/26/11
Unit 3	Shoshone Canyon Conduit Inspection	10/24/11 - 11/02/11
Unit 3	Annual Maintenance	01/09/12 - 01/18/12
Shoshone Powerplant		
Unit 3	Annual Maintenance	01/30/12 - 02/20/12
Heart Mountain Powerplant		
Unit 1	Annual Maintenance Transformer KZ1A	10/24/11 - 10/27/11
Unit 1	Shoshone Canyon Conduit Inspection	10/24/11 - 11/02/11
Unit 1	Annual Maintenance	03/05/12 - 03/14/12
Spirit Mountain Powerplant		
Unit 1	Shoshone Canyon Conduit Inspection	10/24/11 - 11/02/11
Unit 1	Annual Maintenance	10/24/11 - 11/02/11

OPERATING PLANS FOR WATER YEAR 2012

DICKINSON RESERVOIR

At the beginning of water year 2012, Dickinson Dam and E. A. Patterson Lake (Dickinson Reservoir) had storage of 7,983 acre-feet at elevation 2419.46, which is 629 acre-feet and 0.54 feet below the top of the active conservation pool (elevation 2,420.00 at 8,612 acre-feet). The reservoir is normally operated as full as possible at all times. Excess water will be released by spilling over the Bascule gate after the reservoir has filled, and by gated releases through the 24 inch river outlet valve. No releases are planned until irrigation water is required or if the spring runoff deems it necessary for flood protection.

HEART BUTTE RESERVOIR

At the beginning of water year 2012, Heart Butte Dam and Lake Tschida (Heart Butte Reservoir) had storage of 60,156 acre-feet at elevation 2062.32, which is 6,986 acre-feet and 2.18 feet below the top of the active conservation pool (elevation 2,064.50 at 67,142 acre-feet). Since there are no accurate inflow forecasts available, plans are to operate the reservoir as close to the top of the conservation pool as possible while regulating releases required, maintaining downstream conservation commitments, and preserving flood control space. During winter months, and when the reservoir level is below the spillway crest at elevation 2064.50, the river releases will be maintained at about 10 cfs to ensure a live stream below Heart Butte Dam. This will continue through the winter until the spring runoff requires higher releases sometime in late March or early April. Excess water is released only when the reservoir is full or ensured of filling.

JAMESTOWN RESERVOIR

At the beginning of water year 2012, Jamestown Reservoir had storage of 92,246 acre-feet at elevation 1442.43, which is 66,889 acre-feet and 14.43 feet above the top of the active conservation pool (elevation 1,428.00 at 25,357 acre-feet). Water releases were cut to 13 cfs in early January 2012 and will be continued throughout the winter until spring runoff requires additional releases to be made for flood protection. The reservoir is normally operated under the following criteria and limitations set forth in the Field Working Agreement between the Corps of Engineers and Reclamation that reads:

Flood Control Regulation of Joint-Use Pool - Jamestown Reservoir

The joint space between elevations 1428 and 1431 will be used for seasonal multipurpose regulation. For purposes of flood control storage, the reservoir water elevation will be no higher than 1429.8 at the beginning of spring runoff period. That portion of the joint-use pool between elevations 1429.8 and 1431.0 will be used for storage and regulation of the spring runoff and summer rainstorms. In addition, water stored in this zone may be used during the summer months for conservation purposes. Storage remaining in the joint-use pool above elevation 1429.8 ft. msl after September 1 will be evacuated as directed by the Corps of Engineers.

The Bureau has the option of lowering the reservoir below elevation 1429.8 ft. msl should it be desirable based on water supply needs. There are no requirements for maintaining a specified minimum reservoir release.

SEASON: BEGINNING OF SPRING RUNOFF TO SEPTEMBER 1

El. 1429.80 (Base of flood control zone) to El. 1431.00 (Top of Joint Use Pool)

Release greater of:

a. Conservation releases

b. Based on inflows occurring at the time and the existing potential for further inflows, releases will be maintained as necessary to result in a pool elevation of 1431 at the time inflows cease.

SEASON: SEPTEMBER 1 TO NOVEMBER 1

Make releases necessary to evacuate reservoir to elevation 1429.80 prior to November 1.

SEASON: NOVEMBER 1 TO BEGINNING OF SPRING RUNOFF

Make releases necessary to maintain elevation 1429.80.

DEERFIELD RESERVOIR

Deerfield Reservoir started water year 2012 at elevation 5906.73 feet and storage of 15,131 acre-feet, which is 2.23 feet and 921 acre-feet below the top of conservation. The reservoir winter draw down was at 15,239 acre-feet at December 1, 2011. This is close to our target of 15,000 acre-feet by December 1. A target of 15,000 acre-feet of storage by March 1 will usually dictate the winter release, which is set near December 1. The winter release for water year 2012 is set based on water usage from Deerfield by the Rapid Valley Water Conservancy District (District) and the storage target of 15,000 acre-feet by March 1. The goal is to be near full by May 1 which is the start of the irrigation season. No irrigation water was used by the District during the 2011 irrigation season.

A release of 15 to 18 cfs will be maintained until the spring runoff requires higher releases in late March or early April. Excess water is normally released only when the reservoir is full or assured of filling. Since no inflow forecasts are available, the reservoir is normally operated as full as possible. Two SNOTEL sites (North Rapid Creek and Blind Park) are operated in the Pactola and Deerfield drainage basin. Deerfield storage may be required to meet District irrigation needs in water year 2012.

The jet flow gates will be used for winter releases and provide minimum stream flows of 6 cfs or more which will enhance winter fishery conditions in Castle Creek and improve fishery production conditions in the stream.

Storage at the end of the water year will depend on the amount of inflow to the Pactola-Deerfield system and the need for project water deliveries from Deerfield Reservoir.

During average and above average inflow years, summer releases will be made to bring the reservoir storage to about 14,900 acre-feet by September 30. This is to accommodate minimum releases of 6 cfs into Castle Creek during the winter. The actual release will depend on runoff conditions and will take into account downstream ice conditions in Castle Creek.

PACTOLA RESERVOIR

Pactola Reservoir started water year 2012 at elevation 4576.98 feet and storage of 53,254 acre-feet (52,237 acre-feet active storage), which is 3.22 feet and 2,718 acre-feet below the top of conservation. Operating criteria established for the reservoir in the Definite Plan Report called for minimum winter conservation releases to be 7 cfs from October 1 to April 15 and 20 cfs from April 15 to April 30 when the reservoir content is below 29,000 acre-feet. Releases of 15 cfs from October 1 through March 1 and 20 cfs from March 1 through April 30 are established for reservoir content above 29,000 acre-feet. Minimum summer conservation releases are 20 cfs at all reservoir contents.

Pactola Reservoir is operated as close to the top of the conservation pool as possible, while regulating releases required to maintain a downstream fishery and to preserve flood control space. The new long term storage contract for Pactola, between Reclamation and the city of Rapid City, was signed on July 31, 2007. New operating criteria for releases to Rapid Creek were established in the Standard Operating Plans. The following minimum releases will be made as long as water is available in the Fisheries, Wildlife, and Recreation Pool.

1. Reservoir content greater than 29,000 acre-feet

Year round	20 cfs

2. Reservoir content less than 29,000 acre-feet

October 1 to April 15	15 cfs
April 15 to October 1	20 cfs

The winter release for water year 2012 is approximately 40 to 50 cfs and has been coordinated with the city of Rapid City, South Dakota Department of Game, Fish, and Parks, local water users, Forest Service, and Corps of Engineers. With a reservoir content of 29,000 acre-feet and above, a release of 20 cfs has been specified in the Finding of No Significant Impact for the Environmental Assessment for the Pactola Reservoir Water Service Contract Renewal (FONSI No. DK600-00-03). Pactola winter releases can be increased by 2 or 3 cfs during extremely cold weather to replace water that is lost in the formation of ice in the creek channel. Once the channel is covered with ice and snow, which provides insulation for the stream, the releases can be reduced if below average snow pack and inflow conditions indicate a need to conserve storage.

During the flood control season, total releases will be controlled between 20 cfs and 1,000 cfs. Releases in excess of 200 cfs when storage is below the top of the conservation pool at elevation 4580.20 will be cleared with the Corps of Engineers. The Corps will issue release orders on a current basis when storage is in the exclusive flood control pool. Contract negotiations with water users at Pactola Reservoir will provide the basis for future reservoir operations.

During the irrigation season of May 1 through October 30 sufficient natural flows to meet prior rights of the irrigators will be bypassed through the reservoir. Orders by water users will be released under the provisions of contracts with the water users. Drought conditions that have existed in past years have resulted in conservation measures being initiated by water users. Continuation of water conservation measures will assist in conserving reservoir storage and refilling of the reservoir.

The city of Rapid City will replace the spillway section of Canyon Lake Dam (under contract) in the fall and winter of 2012-2013. This may require additional releases from Pactola Reservoir to position the reservoir to limit impacts to the contractor.

ANGOSTURA RESERVOIR

Angostura Reservoir started water year 2012 at elevation 3180.60 feet and storage of 95,074 acre-feet (52,869 acre-feet active storage), which is 7.0 feet and 27,974 acre-feet below the top of conservation. Since Angostura Reservoir is the principle source of water for the Angostura Irrigation District and no accurate inflow forecasts are available for this reservoir, it is operated as full as possible at all times. Excess water is released through the spillway when the reservoir is full or assured of filling. Water may be released from the facility if the reservoir is expected to fill to meet irrigation demands.

KEYHOLE RESERVOIR

Keyhole Reservoir started water year 2012 at elevation 4096.81 feet and storage of 166,274 acre-feet (159,682 acre-feet active storage), which is 2.49 feet and 22,397 acre-feet below the top of conservation. At the beginning of water year 2012, South Dakota storage for the Belle Fourche Irrigation District is 13,261 acre-feet and Wyoming storage for the Crook County Irrigation District is 16,708 acre-feet.

Releases from Keyhole Reservoir are made for either irrigation requirements or flood control. Releases are not anticipated from the reservoir from October through May. Flood control releases are not expected unless extreme precipitation events occur to fill the reservoir. Discharges from toe drains of the dam and downstream inflows normally satisfy downstream requirements for stock water and other minor uses during this period. Releases from storage accounts will be made during the summer of 2012 in response to irrigation demand from the Belle Fourche Irrigation District in South Dakota and the Crook County Irrigation District in Wyoming. Each organization maintains a storage account in Keyhole Reservoir and the contract with the Belle Fourche Irrigation District also includes provisions for the annual purchase of additional unsold South Dakota storage. Peak irrigation demand is normally between 125 and 175 cfs.

The Belle Fourche Irrigation District has lands along the inlet canal that, during drought conditions, can depend entirely on Keyhole Reservoir for storage. These lands are served with flows from the Belle Fourche River and storage from Keyhole. Additional water from Keyhole Reservoir to supplement storage in Belle Fourche Reservoir may be necessary. Crook County Irrigation District also depends entirely on Keyhole Reservoir for storage and has adequate supplies of water in its account for use this year.

SHADEHILL RESERVOIR

Shadehill Reservoir started water year 2012 at elevation 2272.04 feet and storage of 120,373 acre-feet (61,991 acre-feet active storage), which is 0.04 feet and 201 acre-feet into the flood pool. The winter release will be maintained at around 40 cfs to conserve storage and still maintain stream flow. This release rate will be maintained constant or reduced from the time the stream ices over until ice comes out of the channel in the spring to prevent ice jams at crossings. In the spring of 2012, after ice comes out of the channel, the release will be adjusted to draw the reservoir down to 2263.5, for riprap repairs on Ketterling's Point. Releases for irrigation demands will be met by conservation releases.

BELLE FOURCHE RESERVOIR

Belle Fourche Reservoir started water year 2012 at elevation 2967.00 feet and storage of 114,610 acre-feet (111,527 acre-feet active storage), which is 8.00 feet and 58,263 acre-feet below the top of conservation.

A bypass of 5 cfs will be made at the Belle Fourche Diversion Dam to provide flows for domestic use between the diversion dam and the Belle Fourche River confluence with Owl Creek. No releases from the reservoir are planned until irrigation begins in the spring of 2012.

When the volume of water supply available from the reservoir can be estimated in May or June, the Belle Fourche Irrigation District will establish allotments of water to each irrigator and the storage will be used accordingly. The Standing Operating Procedures for Belle Fourche Dam limit the maximum drawdown of the reservoir to 0.3 feet per day as established in the 1984 Safety Evaluation of Existing Dams report. Higher rates of drawdown are acceptable if the total drawdown is limited to 20 feet. This restriction will affect delivery rates to water users in the late summer if the reservoir does not fill. At low reservoir levels, the draw down rate becomes the governing factor for releases.

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' 2011 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)

Dam	Permanent	Carryover Multiple Use	Annual Flood Control and Multiple Use	Exclusive Flood Control	Total Storage
Fort Peck	4,088	10,700	2,704	971	18,463
Garrison	4,980	13,130	4,222	1,489	23,821
Oahe	5,373	13,461	3,201	1,102	23,137
Big Bend	1,621	0	117	60	1,798
Fort Randall	1,517	1,607	1,309	985	5,418
Gavins Point	307	0	86	57	450
Totals	17,886	38,898	11,639	4,664	73,087

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

Powerplant	Units	Capacity (Kilowatts)
Fort Peck	5	185,250
Garrison	5	583,300
Oahe	7	786,030
Big Bend	8	494,320
Fort Randall	8	320,000
Gavins Point	3	132,300
Totals	36	2,501,200

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 56.8 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 CET1 presents the regulation benefit for most of those functions as recorded in 2010-2011, 2009-2010, 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 CET1:
Main Stem Reservoir Water Regulation
Comparison with Past Regulations

Use of Regulated Water	Period of Use or Season	Totals	Totals	Long-Term
Navigation*	Apr. - Dec.[4]	0.355 million tons (2011)	0.380 million tons (2010)	1.82 million tons[1]
Flood Damages Prevented	Oct. – Sept.	$5,445.5 million (2011)	$ 2,421.0 million (2010)	$.51.4 billion[2] billion[2]
Energy	Aug. - Jul.	11.1 billion KWH (Aug. 10-July 11)	6.9 billion KWH (Aug. 09-July 10)	9.4 billion KWH[3]

* Excludes sand, gravel, and waterway material (2011 estimated and 2010 preliminary)
2011 – 4.02 million tons sand, gravel, and waterway material
Total Tonnage including sand, gravel, and waterway material
4.375 million tons (2011)
4.83 million tons (2010)
6.91 million tons (45-year long-term average through 2011)

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

[1]Average for 45 years 1967-2011 with the peak shipments in 1977 (3.336 million tons)
[2]Total damages prevented (1937-2011)
[3]Average Annual 1968-2011
[4]End of navigation season extended 10 days in 2010 and 2011

A detailed description of the main stem system operations during 2011 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, and 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 2,501,200 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 2011 was 12942.39 million kilowatt hours, 4089.42 million kilowatt hours more than in WY 2010. 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
2011	1674.806	11267.588	12942.39
2010	1430.618	7422.355	8852.974
2009	1481.641	6273.697	7755.338
2008	1182.399	4775.900	5958.299
2007	794.348	5061.000	5855.348
2006	1088.603	6199.964	7288.567
2005	953.992	5553.800	6507.792
2004	688.367	7046.084	7734.451
2003	757.118	7783.378	8540.496
2002	708.594	7271.994	7980.588

A comparison of 2010 and 2011 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 2011 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 2011

BUREAU PLANTS	INSTALLED CAPACITY (KW)	MILLION KILOWATT-HOURS GENERATED		WATER USED FOR GENERATION IN 2011			RIVER RELEASE	TOTAL RELEASE
		2010	2011	1,000 AF	PERCENT OF TOTAL RELEASE	KW-HOURS PER AF	1,000 AF	1,000 AF
Canyon Ferry	50,000	385.614	437.036	3,566.206	0.07	122.55	5,309,424.0	5,396,901.0
Pilot Butte[1]	1,600	0.000	0.000	0.000	0.00	N/A	166,906.0	166,906.0
Boysen	15,000	74.982	63.827	790.160	0.06	80.78	1,315,619.0	1,315,619.0
Buffalo Bill Reservoir Units								
Shoshone	3,000	22.845	18.495	98.074	0.01	188.58	See below for	total.
Buffalo Bill	18,000	66.719	80.029	339.523	0.02	235.71	See below for	total.
Heart Mountain	6,000	18.925	16.080	77.704	0.01	206.94	See below for	total.
Spirit Mountain [2]	4,500	15.933	13.853	137.443	0.01	100.79	See below for	total.
Total for Buffalo Bill Reservoir[3]	31,500	124.422	128.457	652.744	0.04	196.80	1,243,770.0	1,461,313.0
Yellowtail	250,000	872.600	1,045.486	2,894.447	0.08	361.20	3,693,250.0	3,707,092.0
Subtotal	**348,100**	**1,457.618**	**1,674.806**	**7,903.557**	**0.07**	**211.91**	**11,728,969.0**	**12,047,831.0**
CORPS PLANTS								
Fort Peck	185,250	592.102	1,155.327	6,795.00	53.11	170.03	12,795.0	12,795.0
Garrison	583,300	1,422.468	2,628.029	16,905.00	45.77	155.46	36,932.0	36,932.0
Oahe	786,030	1,769.198	3,381.586	22,322.00	52.32	151.49	42,665.0	42,665.0
Big Bend	494,320	667.800	1,646.071	31,177.00	75.47	52.80	41,311.0	41,311.0
Fort Randall	320,000	1,205.027	1,805.861	18,179.00	40.61	99.34	44,769.0	44,769.0
Gavins Point	132,300	617.102	650.714	16,921.00	35.63	38.46	47,492.0	47,492.0
Subtotal	**2,501,200**	**6,273.697**	**11,267.588**	**112,299.00**	**49.70**	**100.34**	**225,964.0**	**225,964.0**
TOTAL MISSOURI BASIN	**2,849,300**	**7,731.315**	**12,942.394**	**120,202.56**	**0.98**	**107.67**	**11,954,933.0**	**12,273,795.0**

[1] River Release and Total Release at Pilot Butte Reservoir is computed inflow to Pilot Butte Reservoir due to the location of the powerplant at inlet of supply canal.

[2] Spirit Mountain Powerplant is used to dissipate energy in the transition from the pressurized portion of the Shoshone Canyon Conduit to the free flow section of the conduit. Water used for generation at Spirit Mountain Powerplant is then routed to Heart Mountain Canal or used for generation at Heart Mountain Powerplant.

[3] This represents the total for the four separate powerplants at Buffalo Bill Dam.

TABLE CET3

MONTHLY ENERGY GENERATION (MILLION KILOWATT-HOURS)

WATER YEAR 2011

MONTH	BUREAU OF RECLAMATION PLANTS								
				BUFFALO BILL PLANTS					
	CANYON FERRY	PILOT BUTTE	BOYSEN	HEART MOUNTAIN	SPIRIT MOUNTAIN	BUFFALO BILL	SHOSHONE	YELLOWTAIL	TOTAL
October	30.912	0.000	3.851	0.000	1.141	4.478	1.698	53.826	**95.906**
November	34.244	0.000	4.177	0.000	0.000	2.446	1.624	42.843	**85.334**
December	40.738	0.000	4.304	0.000	0.000	2.334	1.796	43.495	**92.667**
January	39.836	0.000	4.304	0.000	0.000	2.141	1.808	46.269	**94.358**
February	35.090	0.000	2.976	0.000	0.000	2.114	0.810	39.482	**80.472**
March	31.867	0.000	3.914	0.000	0.000	2.238	1.835	47.342	**87.196**
April	36.853	0.000	6.553	0.000	0.000	8.027	1.640	105.576	**158.649**
May	39.604	0.000	10.262	3.305	2.034	8.375	1.517	132.339	**197.436**
June	39.815	0.000	8.941	3.223	1.757	10.884	1.398	141.478	**207.496**
July	40.200	0.000	2.318	2.755	3.003	12.783	1.070	168.641	**230.770**
August	39.502	0.000	7.397	3.419	3.095	12.436	1.722	142.682	**210.253**
September	28.375	0.000	4.830	3.378	2.823	11.773	1.577	81.513	**134.269**
TOTAL	**437.036**	**0.000**	**63.827**	**16.080**	**13.853**	**80.029**	**18.495**	**1,045.486**	**1,674.806**

MONTH	CORPS OF ENGINEERS PLANTS							MISSOURI BASIN TOTAL
	FORT PECK	GARRISON	OAHE	BIG BEND	FORT RANDALL	GAVINS POINT	TOTAL	
October	62.057	289.147	311.025	129.538	208.021	81.515	**1,081.303**	**1,177.209**
November	60.851	255.724	278.416	129.819	198.008	78.073	**1,000.891**	**1,086.225**
December	78.946	171.015	221.292	84.679	126.930	55.564	**738.426**	**831.093**
January	89.275	224.273	201.003	74.081	103.674	52.847	**745.153**	**839.511**
February	89.276	220.118	145.940	59.798	89.088	50.908	**655.128**	**735.600**
March	73.136	204.468	134.330	63.360	98.525	56.660	**630.479**	**717.675**
April	68.631	138.443	241.258	84.538	174.012	72.115	**778.997**	**937.646**
May	110.110	282.482	268.160	177.922	198.973	76.701	**1,114.348**	**1,311.784**
June	130.882	220.346	369.216	216.102	157.160	40.934	**1,134.640**	**1,342.136**
July	146.653	207.570	448.300	192.354	151.852	27.039	**1,173.768**	**1,404.538**
August	138.259	223.163	418.623	224.191	152.483	29.979	**1,186.698**	**1,396.951**
September	107.251	191.280	344.023	209.689	147.135	28.379	**1,027.757**	**1,162.026**
TOTAL	**1,155.327**	**2,628.029**	**3,381.586**	**1,646.071**	**1,805.861**	**650.714**	**11,267.588**	**12,942.394**

TABLE CET4

WATER USED FOR POWER GENERATION (1,000 ACRE-FEET)
WATER YEAR 2011

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.[1]							
October	242.001	43.672	0.000	8.997	22.173	0.000	11.330	144.882	375.000	1,813.000	2,037.000	2,137.000	2,193.000	2,062.000
November	270.530	47.446	0.000	8.605	12.164	0.000	0.000	135.892	369.000	1,629.000	1,843.000	2,121.000	2,273.000	1,959.000
December	330.105	48.788	0.000	9.516	12.084	0.000	0.000	140.484	481.000	1,096.000	1,523.000	1,380.000	1,401.000	1,301.000
January	328.022	48.404	0.000	9.580	11.794	0.000	0.000	141.683	548.000	1,449.000	1,383.000	1,213.000	1,062.000	1,139.000
February	294.592	33.477	0.000	4.292	10.001	0.000	0.000	128.139	547.000	1,433.000	985.000	980.000	878.000	1,147.000
March	271.545	43.766	0.000	9.740	12.533	0.000	0.000	156.624	455.000	1,342.000	853.000	1,058.000	927.000	1,291.000
April	323.147	76.365	0.000	8.705	31.615	0.000	0.000	286.122	421.000	884.000	1,550.000	1,479.000	1,620.000	1,690.000
May	361.384	143.560	0.000	8.052	34.956	15.577	21.292	354.398	656.000	1,778.000	1,715.000	3,098.000	1,962.000	1,982.000
June	323.763	134.895	0.000	7.421	46.610	15.585	19.128	393.308	721.000	1,426.000	2,407.000	4,504.000	1,533.000	1,459.000
July	301.930	26.962	0.000	5.680	49.167	14.168	28.803	407.240	813.000	1,337.000	2,967.000	4,763.000	1,404.000	1,017.000
August	299.186	82.099	0.000	9.140	47.187	16.558	29.580	371.124	788.000	1,471.000	2,784.000	4,720.000	1,461.000	1,040.000
September	220.001	60.726	0.000	8.346	49.239	15.816	27.310	234.551	621.000	1,247.000	2,275.000	3,724.000	1,465.000	834.000
TOTAL	**3,566.206**	**790.160**	**0.000**	**98.074**	**339.523**	**77.704**	**137.443**	**2,894.447**	**6,795.000**	**16,905.000**	**22,322.000**	**31,177.000**	**18,179.000**	**16,921.000**

[1] Spirit Mountain Powerplant is used to dissipate energy in the transition from the pressurized portion of the Shoshone Canyon Conduit to the free flow section of the conduit. Water used for generation at Spirit Mountain Powerplant is then routed to Heart Mountain Canal or used for generation at Heart Mountain Powerplant.

TABLE CET5

TOTAL RELEASE (1,000 ACRE-FEET)
WATER YEAR 2011

MONTH	CANYON FERRY	BOYSEN	PILOT BUTTE	BUFFALO BILL	BULL LAKE	ANCHOR	YELLOWTAIL	FORT PECK	GARRISON	OAHE	BIG BEND	FORT RANDALL	GAVINS POINT
October	259.734	48.941	0.000	44.502	1.268	0.503	144.882	375.000	1,813.000	2,345.000	2,137.000	2,193.000	3,000.000
November	301.374	47.446	0.000	20.989	1.272	0.234	135.892	369.000	1,629.000	2,248.000	2,121.000	2,611.000	2,746.000
December	330.105	48.788	0.000	21.800	1.217	0.020	140.484	481.000	1,096.000	1,523.000	1,380.000	1,401.000	1,549.000
January	328.022	49.031	0.000	21.913	1.224	0.000	141.683	548.000	1,449.000	1,383.000	1,213.000	1,062.000	1,139.000
February	296.606	44.033	0.000	19.899	1.105	0.018	128.139	547.000	1,433.000	985.000	980.000	878.000	1,147.000
March	313.764	49.243	0.000	22.472	1.751	0.015	156.624	455.000	1,342.000	853.000	1,058.000	927.000	1,291.000
April	348.652	79.570	2.948	118.575	5.287	0.000	286.122	421.000	884.000	1,550.000	1,479.000	1,648.000	1,805.000
May	701.693	177.625	18.569	183.407	15.302	0.989	401.458	904.000	3,120.000	3,231.000	3,098.000	3,505.000	3,465.000
June	945.010	283.545	26.394	329.660	11.834	6.254	861.248	3,134.000	8,125.000	8,477.000	8,454.000	8,007.000	8,274.000
July	935.640	292.324	40.730	411.834	81.061	5.260	650.234	2,553.000	7,856.000	8,868.000	8,703.000	9,597.000	9,823.000
August	342.157	131.116	40.392	145.511	43.495	5.751	425.775	1,638.000	5,604.000	7,198.000	6,953.000	8,177.000	8,377.000
September	294.144	63.958	31.337	120.752	44.072	0.606	234.551	1,370.000	2,581.000	4,004.000	3,735.000	4,763.000	4,876.000
TOTAL	**5,396.901**	**1,315.620**	**160.370**	**1,461.314**	**208.888**	**19.650**	**3,707.092**	**12,795.000**	**36,932.000**	**42,665.000**	**41,311.000**	**44,769.000**	**47,492.000**

TABLE CET6

TOTAL RESERVOIR STORAGE CONTENTS (1,000 ACRE-FEET)
WATER YEARS 2010 AND 2011

BUREAU RESERVOIRS	TOP OF CONSERVATION CAPACITY [3]	DEAD AND INACTIVE CAPACITY	TOTAL STORAGE SEPTEMBER 30		END OF SEPTEMBER PERCENT OF AVERAGE	
			2010	2011	2010	2011
Clark Canyon	174.4	1.1	142.9	155.4	115	125
Canyon Ferry	1,891.9	396.0	1,766.5	1,704.7	103	100
Helena Valley	10.5	4.6	8.5	8.6	114	116
Gibson	96.5	0.0	16.2	12.1	58	43
Willow Creek	31.8	1.0	23.1	27.7	132	159
Pishkun	46.7	16.0	20.3	39.0	62	119
Lake Elwell	925.6	554.3	842.4	990.1	108	126
Sherburne	66.1	1.9	30.9	21.6	368	258
Fresno	92.9	0.4	76.3	49.3	191	124
Nelson	79.0	18.1	77.5	75.1	137	132
Bull Lake	152.5	0.7	65.8	93.0	87	123
Pilot Butte	33.7	3.8	17.4	23.5	91	131
Boysen	741.6	219.2	639.2	691.5	97	115
Anchor[1]	17.2	0.1	0.3	0.4	104	122
Buffalo Bill[2]	646.6	41.7	485.5	482.7	110	109
Bighorn Lake	1,020.6	469.9	960.9	1,025.0	94	106
E. A. Patterson	8.6	0.5	7.8	8.0	128	128
Lake Tschida	67.1	5.2	62.8	60.2	111	106
Jamestown Reservoir	31.5	0.8	29.3	92.2	102	321
Shadehill Reservoir	120.2	43.9	105.9	120.4	101	114
Angostura Reservoir	123.0	42.2	97.9	95.1	115	112
Deerfield Reservoir	15.7	0.2	14.7	15.1	110	113
Pactola Reservoir	56.0	1.0	53.9	53.3	117	115
Keyhole Reservoir	188.7	6.6	109.3	166.3	123	188
Belle Fourche Reservoir	172.9	3.1	142.9	114.6	200	155
Subtotal	**6,811.2**	**1,832.3**	**5,798.2**	**6,124.9**		
CORPS RESERVOIRS						
Fort Peck	17,578.0	4,073.0	10,435.0	15,626.0		
Garrison	22,332.0	4,980.0	14,705.0	19,807.0		
Oahe	22,035.0	5,373.0	14,731.0	19,347.0		
Big Bend	1,738.0	1,621.0	1,655.0	1,603.0		
Fort Randall	4,433.0	1,517.0	2,604.0	3,357.0		
Gavins Point	393.0	307.0	394.0	374.0		
Subtotal	**68,509.0**	**17,871.0**	**44,524.0**	**60,114.0**		
TOTAL UPPER MISSOURI BASIN	**75,320.2**	**19,703.3**	**50,322.2**	**66,238.9**		

[1] Percent of average content of Anchor Reservoir is based on an 20-year average, 1991-2010.
[2] Percent of average content of Buffalo Bill Reservoir is based on an 18-year average, 1993-2010; to reflect the operation of the reservoir since 1992 when the dam was raised and the capacity of the reservoir was increased to 646,565 acre-feet.
[3] Includes joint-use space.

TABLE CET7
WATER YEAR 2011
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	146.1	153.1	158.1	160.5	160.1	161.7	164.8	172.2	218.2	216.6	183.0	155.4
% of Average	116	15	116	115	113	109	104	103	131	144	143	125
CANYON FERRY RESERVOIR	1,740.5	1,677.1	1,597.3	1,518.4	1,418.8	1,391.4	1,364.4	1,404.2	1,967.5	1,920.0	1,810.6	1,704.7
% of Average	101	96	96	96	94	96	94	86	104	105	105	100
HELENA VALLEY RESERVOIR	7.8	7.5	7.2	7.0	6.8	6.6	10.2	10.1	9.2	7.8	6.9	8.6
% of Average	113	112	112	116	119	117	110	111	103	105	85	116
GIBSON RESERVOIR	13.7	12.2	13.5	15.6	16.0	16.1	20.4	74.6	95.8	86.3	35.2	12.1
% of Average	46	35	35	37	36	34	38	88	108	147	106	51
WILLOW CREEK	22.9	25.4	25.7	25.9	26.2	26.6	28.2	31.5	30.7	31.3	29.1	27.7
% of Average	120	129	129	128	127	122	113	114	103	134	157	159
PISHKUN RESERVOIR	33.0	37.6	37.4	37.2	37.1	37.0	36.7	46.8	44.9	30.4	45.3	39.0
% of Average	97	109	109	109	109	108	90	102	106	82	129	119
LAKE ELWELL (TIBER DAM)	824.7	805.6	790.8	774.2	769.1	793.0	785.6	890.3	1,243.7	1,270.5	1,127.8	990.1
% of Average	110	111	112	113	115	118	112	112	134	140	134	126
SHERBURNE LAKE	36.5	44.1	47.8	51.5	53.5	49.0	29.4	32.7	56.1	62.9	41.9	21.6
% of Average	388	324	273	255	237	218	156	112	107	131	178	258
FRESNO RESERVOIR	70.7	67.4	66.2	64.0	69.7	85.8	99.1	104.1	93.9	76.1	45.1	49.3
% of Average	180	174	177	179	196	163	140	159	151	171	121	124
NELSON RESERVOIR	73.9	71.5	70.0	68.4	66.9	65.9	76.7	77.1	73.3	72.0	73.9	75.1
% of Average	125	123	124	124	124	121	127	127	123	131	136	132
BULL LAKE	68.6	69.6	71.0	71.4	71.3	70.9	68.0	64.1	123.8	144.4	128.2	93.0
% of Average	92	92	94	94	94	93	90	72	98	112	124	123
PILOT BUTTE RESERVOIR	28.1	27.8	27.7	27.6	27.6	27.4	24.5	23.3	28.4	29.9	24.2	23.5
% of Average	106	100	100	99	99	93	80	87	96	118	113	131
BOYSEN RESERVOIR	627.1	621.8	618.6	608.9	597.9	595.4	550.8	463.3	556.2	757.6	706.2	691.5
% of Average	105	105	108	109	109	110	105	84	85	117	114	115
ANCHOR RESERVOIR	0.3	0.3	0.4	0.3	0.3	0.6	0.3	0.3	4.3	6.0	0.5	0.4
% of Average[1]	119	139	168	140	129	179	57	20	123	289	75	122
BUFFALO BILL RESERVOIR	457.6	455.6	452.3	446.1	438.1	433.3	335.0	313.9	472.1	620.2	571.5	482.7
% of Average[2]	109	108	107	106	105	105	85	71	83	109	113	109
BIGHORN LAKE	938.2	924.9	907.1	841.5	825.3	836.0	795.7	923.6	1,066.6	1,209.3	1,062.7	1,025.0
% of Average	93	95	98	102	103	106	102	111	109	123	110	106
E. A. PATTERSON LAKE	7.6	7.7	7.9	8.1	8.4	9.2	9.0	9.3	8.4	8.3	8.5	8.0
% of Average	127	131	134	137	130	118	114	120	110	116	128	128
LAKE TSCHIDA	60.5	61.5	62.7	64.0	65.4	70.7	68.9	76.3	70.8	69.1	62.7	60.2
% of Average	106	107	109	111	110	104	105	117	108	112	108	106
JAMESTOWN RESERVOIR	26.5	27.0	27.0	26.5	25.9	27.4	184.3	142.1	97.0	118.7	160.3	92.2
% of Average	99	102	101	99	96	75	325	313	260	349	491	321
SHADEHILL RESERVOIR	100.5	97.7	94.9	92.4	97.2	129.4	124.9	131.4	128.1	123.2	121.4	120.4
% of Average	98	96	95	94	96	112	107	112	111	108	111	114
ANGOSTURA RESERVOIR	98.4	100.0	102.7	105.0	117.5	115.2	121.2	117.6	121.2	111.9	100.9	95.1
% of Average	114	114	115	115	123	112	115	107	112	113	114	112
DEERFIELD RESERVOIR	14.8	14.8	14.8	14.9	14.9	14.9	15.1	15.9	15.5	15.4	15.2	15.1
% of Average	110	109	108	107	106	104	105	110	108	109	111	113
PACTOLA RESERVOIR	54.2	54.0	53.8	53.9	53.9	53.9	54.8	59.6	58.2	58.3	54.6	53.3
% of Average	116	115	116	116	116	114	113	119	115	120	116	115
KEYHOLE RESERVOIR	108.1	108.2	108.8	109.7	113.3	132.4	136.5	169.6	173.9	171.9	169.0	166.3
% of Average	122	123	123	124	124	136	138	167	171	179	186	188
BELLE FOURCHE RESERVOIR	104.7	118.7	133.8	150.3	157.8	164.0	163.3	174.2	168.0	151.4	126.5	114.6
% of Average	127	129	132	136	132	123	113	112	113	128	147	155

CORPS RESERVOIRS	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
FORT PECK RESERVOIR	15,164.0	15,111.0	15,074.0	15,070.0	15,176.0	15,803.0	16,292.0	18,193.0	18,645.0	17,634.0	16,537.0	15,626.0
GARRISON RESERVOIR	20,687.0	19,678.0	19,409.0	18,860.0	18,418.0	19,049.0	21,349.0	23,574.0	23,984.0	22,920.0	20,348.0	19,807.0
OAHE RESERVOIR	19,178.0	18,525.0	18,059.0	18,182.0	18,877.0	21,093.0	21,990.0	22,725.0	22,974.0	22,237.0	20,744.0	19,347.0
BIG BEND RESERVOIR	1,654.0	1,630.0	1,631.0	1,683.0	1,662.0	1,651.0	1,658.0	1,574.0	1,609.0	1,591.0	1,580.0	1,603.0
FORT RANDALL RESERVOIR	2,702.0	2,341.0	2,468.0	2,815.0	3,168.0	3,770.0	3,882.0	3,959.0	5,276.0	4,850.0	4,074.0	3,357.0
LEWIS AND CLARK LAKE	383.0	370.0	388.0	373.0	330.0	354.0	326.0	354.0	350.0	339.0	357.0	374.0

[1] Percent of average content of Anchor Reservoir is based on a 20-year average, 1991-2010; this is due to the availability of data for Anchor Reservoir.

[2] Percent of average content of Buffalo Bill Reservoir is based on an 18-year average, 1993-2010; to reflect the operation of the reservoir since 1992 when the dam was raised and the capacity of the reservoir was increased to 646,565 acre-feet.

[3] For 2011 percent of average used 1967-2010 for HVR, 1947-2010 for NELR, 1952-2010 for WCR, 1947-2010 for PSHR.

TABLE CET8
WATER YEAR 2011
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	20.3	19.7	18.2	16.4	13.8	17.2	21.0	30.0	66.2	41.5	25.7	24.5	314.6
% of Average	91	93	104	110	104	99	103	112	188	154	133	125	123
CANYON FERRY RESERVOIR	233.1	237.9	250.3	249.2	197.0	286.3	321.6	741.5	1,508.3	888.1	232.7	188.2	5,334.4
% of Average	84	84	110	114	91	109	98	138	207	276	143	93	141
HELENA VALLEY RESERVOIR	-0.5	-0.3	-0.3	-0.2	-0.2	-0.2	7.0	11.4	7.0	13.7	20.3	16.9	74.8
% of Average [3]	N/A	N/A	N/A	N/A	N/A	N/A	127	97	49	89	122	202	
GIBSON RESERVOIR	12.2	10.4	9.8	10.8	8.4	8.9	19.6	172.5	338.4	162.0	36.1	19.2	808.3
% of Average	73	64	71	83	72	60	50	111	189	252	139	105	142
WILLOW CREEK	-0.2	2.5	0.3	0.2	0.3	0.4	1.5	4.2	11.2	1.8	0.2	0.0	22.4
% of Average [3]	N/A	321	78	43	69	50	76	106	288	334	N/A	N/A	155
PISHKUN RESERVOIR	12.7	4.6	-0.1	-0.2	-0.1	-0.1	-0.3	23.1	29.5	81.1	76.4	38.9	265.4
% of Average [3]	482	599	N/A	N/A	N/A	N/A	N/A	64	51	115	181	297	116
LAKE ELWELL (TIBER DAM)	13.4	11.1	16.2	14.0	22.5	63.3	62.4	204.4	402.5	126.5	29.2	24.3	990.0
% of Average	75	56	94	89	109	136	111	145	258	258	189	192	174
SHERBURNE LAKE	5.6	7.6	3.7	3.7	2.1	1.7	4.1	30.4	58.4	41.9	13.7	6.0	179.0
% of Average	93	122	106	123	90	52	41	96	147	206	143	96	126
FRESNO RESERVOIR	6.4	5.0	4.8	3.5	10.8	43.2	81.3	81.5	100.2	9.6	15.9	28.3	390.4
% of Average	99	279	598	493	316	147	253	187	211	28	50	120	153
NELSON RESERVOIR	-1.0	-2.3	-1.6	-1.6	-1.5	-1.0	13.3	9.3	7.5	6.5	13.5	14.5	55.7
% of Average [3]	N/A	N/A	N/A	N/A	N/A	N/A	177	137	97	129	185	229	135
BULL LAKE	4.0	2.3	2.6	1.6	1.0	1.4	2.3	11.5	71.4	101.7	27.3	8.8	236.0
% of Average	71	74	105	75	62	78	62	41	116	220	131	93	126
PILOT BUTTE RESERVOIR[1]	11.1	-0.3	-0.1	-0.1	0.0	-0.1	0.1	17.4	31.5	42.2	34.7	30.7	166.9
% of Average	99	N/A	N/A	N/A	N/A	N/A	1	74	85	102	107	131	93
BOYSEN RESERVOIR	36.8	42.2	45.6	39.3	33.0	46.7	34.9	90.1	376.5	493.2	79.7	49.3	1,367.4
% of Average	62	86	121	107	88	90	71	75	147	377	139	94	146
ANCHOR RESERVOIR	0.5	0.2	0.1	-0.1	0.0	0.3	-0.3	1.0	10.2	7.0	0.2	0.5	19.7
% of Average[2]	83	78	41	N/A	26	99	N/A	26	150	350	76	99	125
BUFFALO BILL RESERVOIR	16.6	19.0	18.6	15.7	12.0	17.7	20.3	162.3	487.9	559.9	96.7	32.0	1,458.5
% of Average	64	89	119	107	92	93	49	102	162	349	216	129	174
BIGHORN LAKE	122.2	122.6	122.7	121.9	111.9	167.4	245.8	529.4	1,004.2	792.9	279.2	196.8	3,817.0
% of Average	70	84	96	96	86	101	153	201	235	275	177	115	160
E. A. PATTERSON LAKE	-0.2	0.1	0.2	0.3	0.3	11.9	24.7	21.1	4.3	0.5	2.8	-0.1	65.8
% of Average	-41	49	118	112	15	180	742	1874	235	53	597	-82	383
LAKE TSCHIDA	-0.1	1.3	1.7	1.8	1.9	32.0	117.0	66.2	41.0	5.9	8.9	1.6	279.3
% of Average	N/A	85	176	218	40	109	695	1211	564	161	665	609	378
JAMESTOWN RESERVOIR	1.4	1.2	0.8	0.3	0.1	2.3	203.3	52.4	27.2	68.7	106.3	15.1	479.1
% of Average	90	92	121	123	18	21	560	567	607	1239	2166	750	617
SHADEHILL RESERVOIR	-0.3	0.7	1.0	1.2	8.2	103.2	44.8	53.8	34.5	15.2	7.6	2.8	272.5
% of Average	N/A	62	105	127	187	406	240	425	581	346	919	N/A	359
ANGOSTURA RESERVOIR	0.7	1.7	2.7	2.5	12.8	44.4	9.4	30.4	21.1	3.7	1.5	-1.2	129.6
% of Average	28	53	136	108	252	390	111	228	136	113	89	N/A	186
DEERFIELD RESERVOIR	0.8	0.7	0.8	0.8	0.7	1.1	1.6	3.8	3.4	1.8	1.2	1.0	17.6
% of Average	102	101	113	117	113	106	121	245	241	177	150	146	157
PACTOLA RESERVOIR	2.4	2.0	2.1	2.3	2.0	3.3	4.9	14.9	14.9	6.7	3.8	2.8	62.0
% of Average	109	106	139	147	131	118	107	216	220	178	131	131	161
KEYHOLE RESERVOIR	-1.2	0.1	0.7	0.8	3.7	19.0	4.2	33.0	4.3	-1.9	-3.0	-2.7	57.0
% of Average	N/A	N/A	344	170	141	304	195	811	265	N/A	N/A	N/A	427
BELLE FOURCHE RESERVOIR	2.5	14.0	15.1	16.5	7.5	7.0	1.3	25.1	11.7	5.9	4.7	9.9	121.3
% of Average	22	141	169	179	84	49	11	149	114	120	217	208	107

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

[2] Percent of average inflow for Anchor Reservoir is based on a 20-year average, 1991-2010, this is due to the availability of data for Anchor Reservoir.

[3] For 2011 percent of average used 1967-2010 for HVR, 1947-2010 for NELR, 1952-2010 for WCR, 1947-2010 for PSHR.

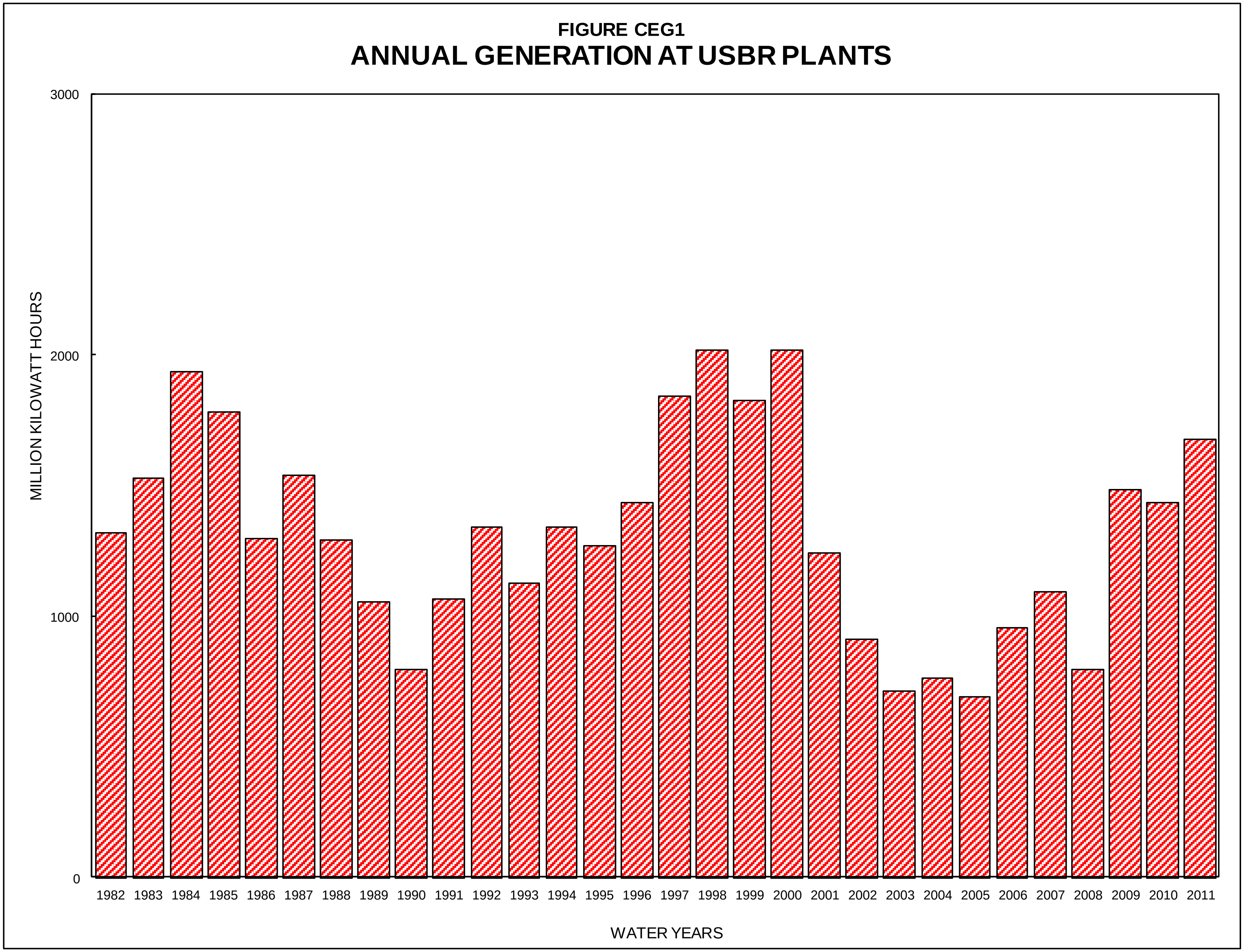
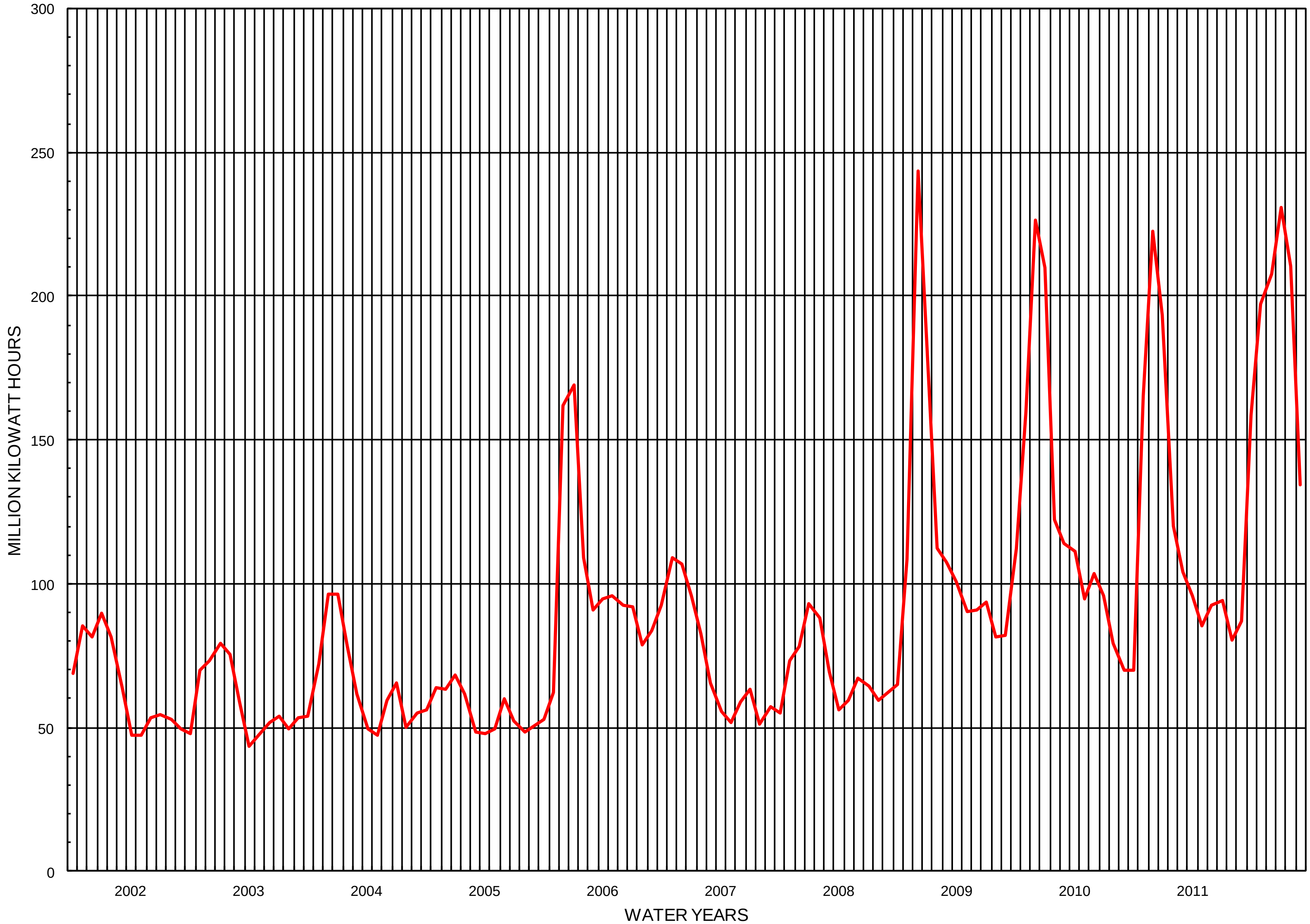


FIGURE CEG1
ANNUAL GENERATION AT USBR PLANTS
3000
2000
1000
0
MILLION KILOWATT HOURS
1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
WATER YEARS

FIGURE CEG2

MONTHLY GENERATION AT USBR PLANTS



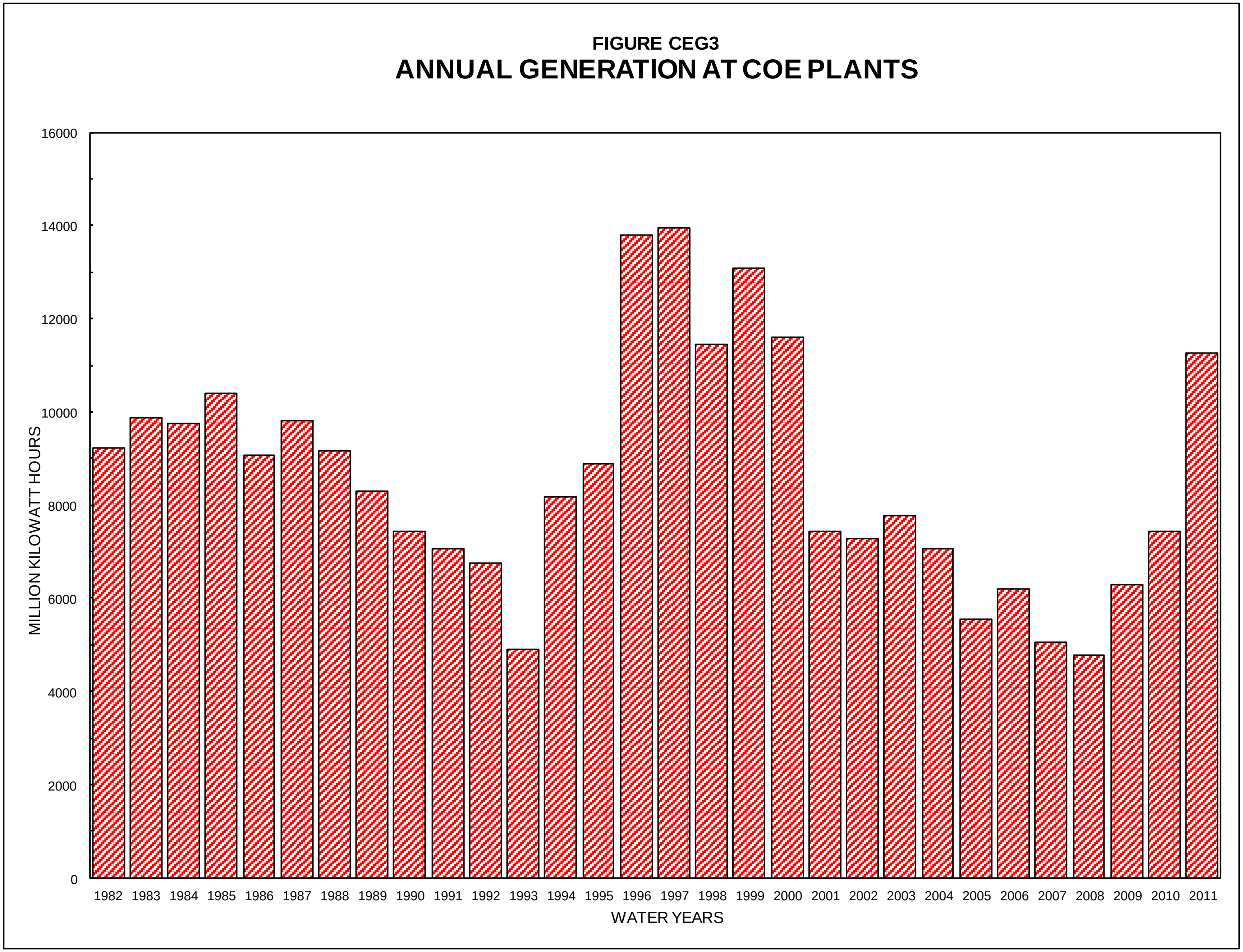


FIGURE CEG3
ANNUAL GENERATION AT COE PLANTS
MILLION KILOWATT HOURS
16000
14000
12000
10000
8000
6000
4000
2000
0
1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
WATER YEARS

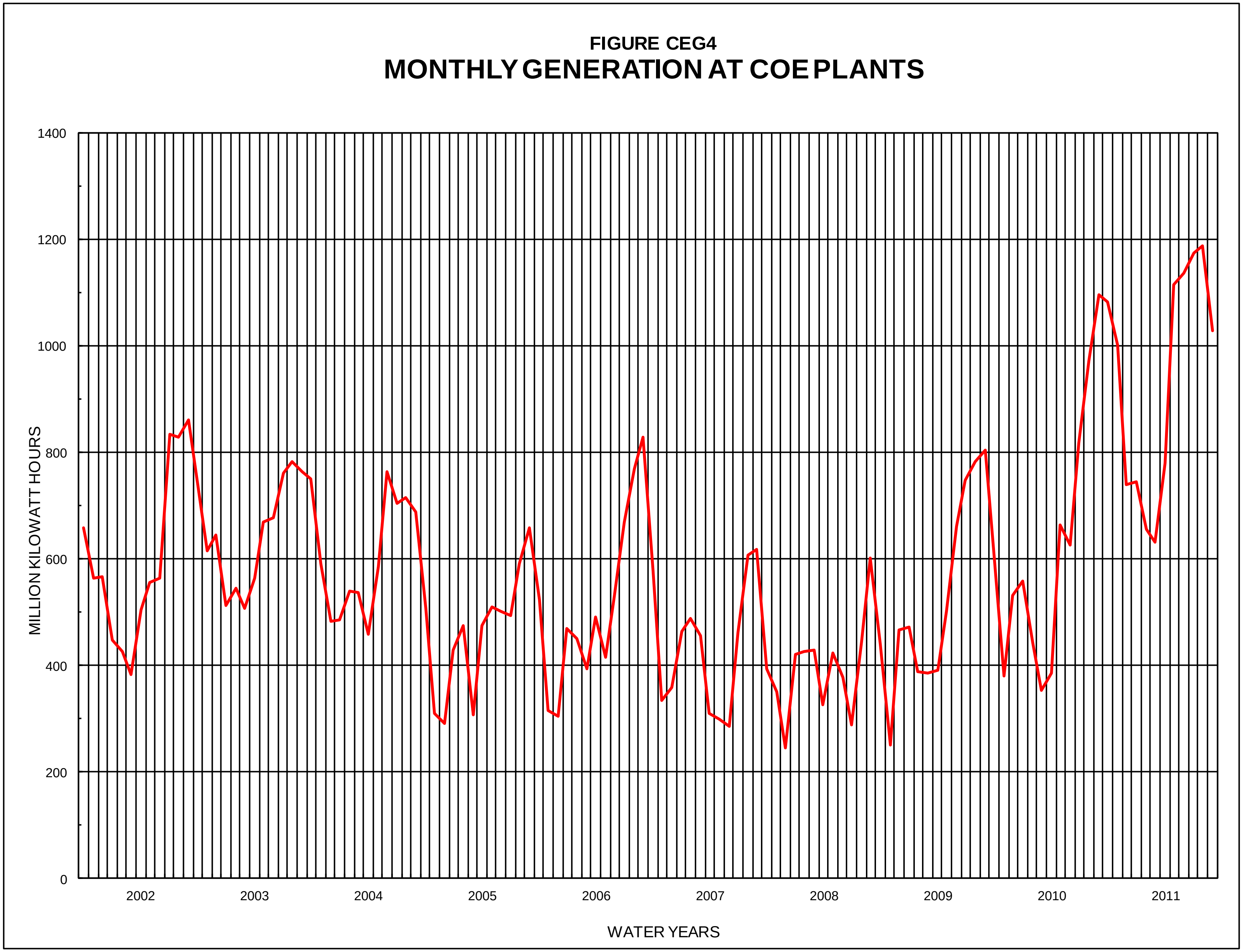


FIGURE CEG4
MONTHLY GENERATION AT COE PLANTS
MILLION KILOWATT HOURS
WATER YEARS
0
200
400
600
800
1000
1200
1400
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011

FIGURE CEG5

ANNUAL GENERATION - USBR & COE PLANTS

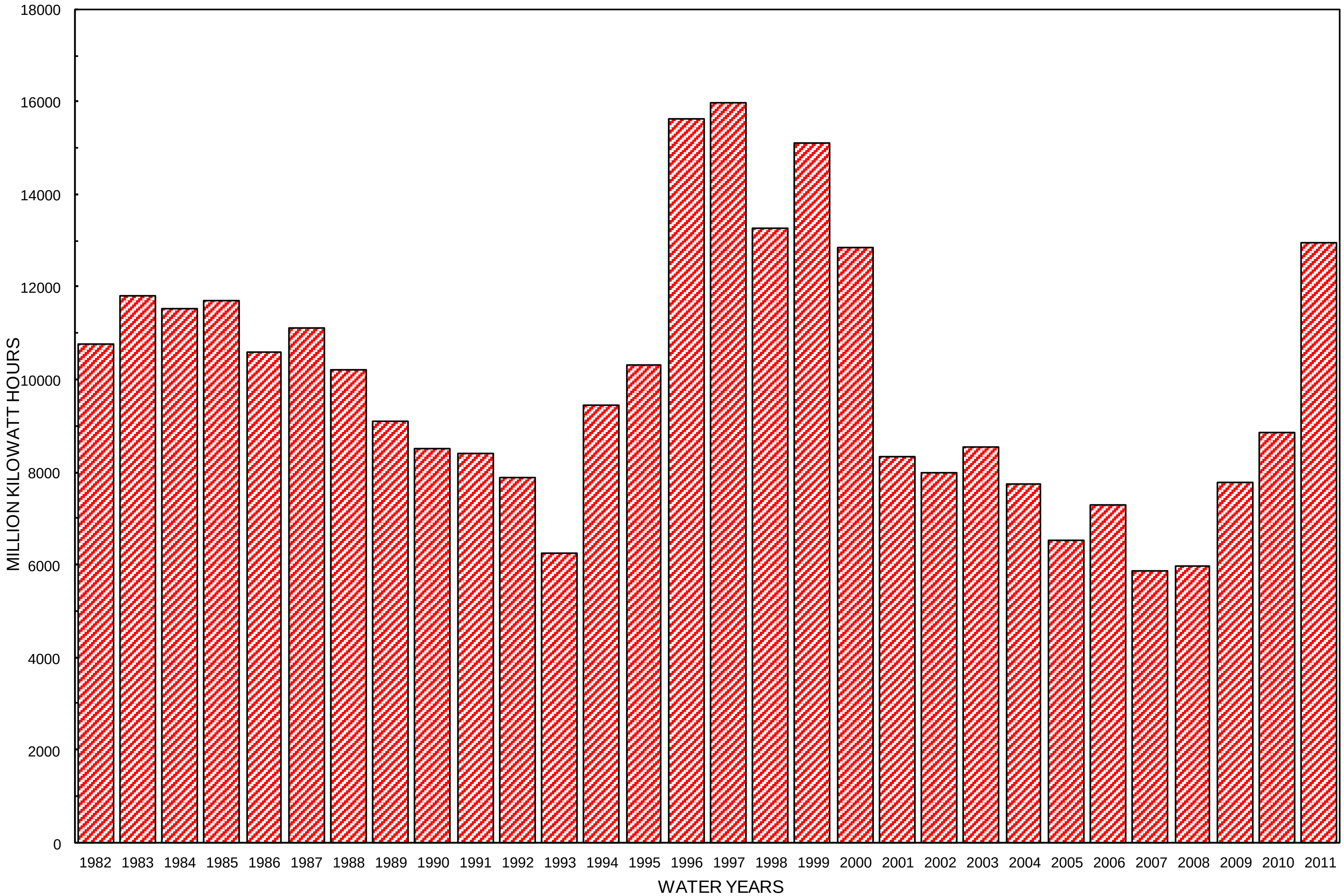


FIGURE CEG6

MONTHLY GENERATION - USBR & COE PLANTS