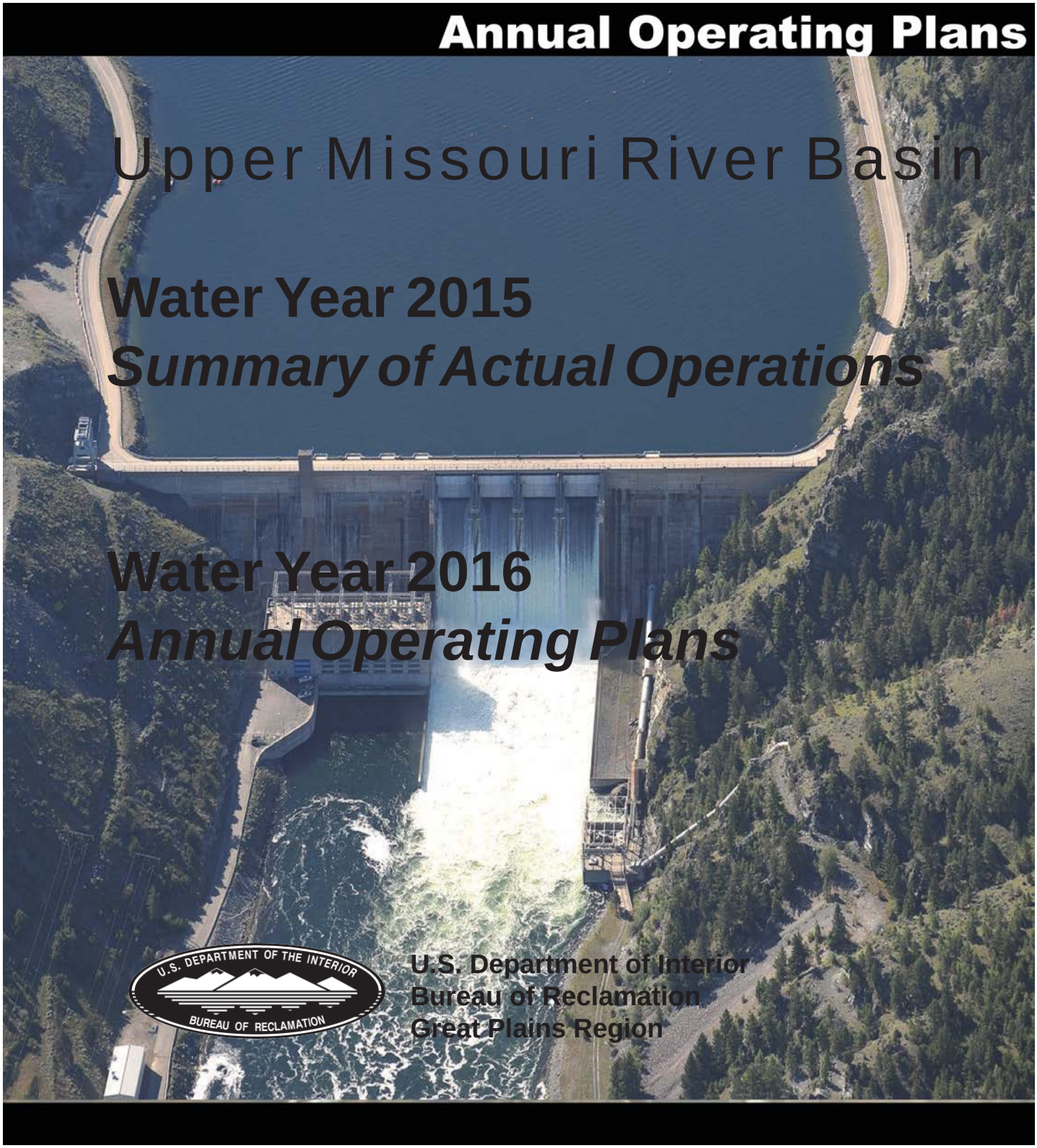
RECLAMATION

Managing Water in the West

Annual Operating Plans



Upper Missouri River Basin

Water Year 2015
Summary of Actual Operations

Water Year 2016
Annual Operating Plans

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

TABLE OF CONTENTS
SUMMARIES OF OPERATION FOR WATER YEAR 2015 FOR RESERVOIRS IN MONTANA, WYOMING, AND THE DAKOTAS

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

RESERVOIRS UNDER THE RESPONSIBILITY OF THE DAKOTAS AREA OFFICE

OUTLOOK AND OPERATING PLANS FOR WATER YEAR 2016

RESERVOIRS UNDER THE RESPONSIBILITY OF THE MOUNTANA AREA OFFICE

RESERVOIRS UNDER THE RESPONSIBILITY OF THE WYOMING AREA OFFICE

RESERVOIRS UNDER THE RESPONSIBILITY OF THE DAKOTAS AREA OFFICE

MAIN STEM RESERVOIRS AND ENERGY GENERATION DATA

TABLES

MONTANA, WYOMING AND DAKOTAS
AREA OFFICE GRAPHS OF RESERVOIR
OPERATIONS DURING WATER YEAR 2014

FIGURES

INTRODUCTION

Annual reports on actual operations and operating plans for reservoir regulation activities were initiated in 1953. The Mountain Area Office (MTAO), Wyoming Area Office (WYAO), Dakotas Area Office 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 steamflow conditions in the Upper Missouri River Basin during water year (WY) 2015, which are principal factors governing the pattern of reservoir operations. This report also describes operations during WY 2015 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 WY 2016, 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 are 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 2015 is compared graphically with that of previous years.

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 OPERATIONS

FOR WATER YEAR 2015

FOR RESERVOIRS

(CLARK CANYON, CANYON FERRY, HELENA VALLEY, SUN RIVER, LAKE ELWELL, MILK RIVER AND BIGHORN LAKE AND YELLOWTAIL POWERPALNT)

UNDER THE RESPONSIBILITY

OF THE

MONTANA AREA OFFICE

WATER YEAR 2015 SUMMARY
HYDROLOGIC CONDITIONS AND FLOOD CONTROL

End of Water Year 2014

Water year 2014 inflows to Reclamation facilities in Montana east of the Continental Divide ranged from 104 to 139 percent of average, with Clark Canyon Reservoir being the exception receiving only 60 percent of average. Due to a higher than normal water year, Reclamation was able to maintain flows at or above the minimum fishery flows.

Precipitation and temperatures varied throughout the state during September 2014. By the end of WY 2014 the mountain precipitation was near average for all basins above Reclamation's reservoirs. The Jefferson basin had a low of 88 percent of average valley precipitation, while the Marias basin had a high of 121 percent of average valley precipitation.

WY 2014 ended with varying storage levels. Clark Canyon Reservoir was at 76 percent of average while Sherburne was 202 percent of average. The Reclamation reservoir with the most amount of carryover storage was Bighorn Lake at 100 percent of full capacity.

WY 2015 began in October 2014 with temperatures above normal across Montana. Precipitation across the state shifted, producing below average amounts, except for the Marias and Sun-Teton River Basins. These basins received near normal valley and mountain precipitation. October 2014 ended very warm, with several locations across southwest Montana setting new daily extremes for the date. The warmest was 74 degrees Fahrenheit at the town of Livingston.

Although October 2014 was dry and warm, November 2014 was cool and wet. The first days of November 2014 delivered above normal temperatures. Then a cold front passing through the state on November 1, 2014 produced up to 8-inches of snow over portions of western Montana. Ahead of the cold front, Bridger recorded the state's highest temperature for the month, reaching 73 degrees Fahrenheit on November 2, 2014. Another strong cold front brought sharply colder conditions later in the month. On November 28, 2014, the temperature dropped 27 degrees Fahrenheit in 9 minutes in Great Falls when the front passed through. The temperature fell 54 degrees Fahrenheit to -8 degrees Fahrenheit in Bozeman and set a new 24-hour temperature change record. Valley precipitation ranged from a low of 104 percent of average in the Milk River Basin to 267 percent of average in the Marias Basin. The mountain precipitation also followed producing a low of 87 percent of average above Lima Reservoir up to 199 percent of average above Gibson Reservoir.

After a cold start to December 2014, temperatures rebounded to as much as 25 to 30 degrees Fahrenheit above normal by mid-December 2014. As with warmer conditions, windy conditions were more common east of the divide. Record high temperatures were set at Bozeman, Great Falls and Helena. The wind gusts reached 96 mph in Babb on December 23, 2014. The last week of December 2014 brought snow to the mountains and cold temperatures. The year to date mountain precipitation from October 2014 through December 2014 ranged from 73 percent of average above Lima Reservoir to 135 percent of average above Gibson Reservoir. The valley

precipitation ranged from 78 percent of average in the Milk River Basin to 160 percent of average in the Marias Basin. Additional monthly data on valley and mountain precipitation per basin during WY 2015 can be found in Tables MTT1A and MTT1B. By the end of December 2014, the reservoir storages ranged from 85 percent of average at Clark Canyon Reservoir to 194 percent average at Lake Sherburne.

January through March

On January 1, 2015 the NRCS begins reporting mountain snowpack or snow water equivalents throughout Montana. For January 1, 2015, the NRCS mountain snow water content ranged from 87 percent of median in the Madison Basin to 155 percent of median in the Milk River Basin, Table MTT2. On January 1, 2015 Reclamation began forecasting the April-July 2015 spring runoff volumes for Reclamation reservoirs east of the Continental Divide. Therefore, the water supply forecasts prepared on January 1, 2015 indicated April-July 2015 runoff volumes varying from 89 percent of average at Clark Canyon to 110 percent of average at Gibson and Canyon Ferry Reservoir, Table MTT3.

The first half of January 2015 started with below normal temperatures. Temperature averages were as much as 25 to 30 degrees below normal. Some areas also received heavy snowfall. West of the divide and areas east of the divide from Cut Bank, through Great Falls and Billings also saw heavy snowfall. The rest of the month was generally dry. There were periods of strong winds and a period of very warm temperatures. Helena tied their all-time January temperature of 63 degrees Fahrenheit, while Dillon reached 57 degrees Fahrenheit, their second warmest January temperature of record. The warmth persisted and spread over the state on January 26, 2015 with record highs recorded from Dillon and Butte to Glasgow. Yellowtail Dam reached 71 degrees Fahrenheit, for the warmest temperature for the month of January 2015, and the warmest January temperature in Montana since 2005.

The first few days of February 2015 were on the cool side, followed by a two week period with above normal temperatures, then February 2015 ended with below normal temperatures. By the end of February 2015, the year to date mountain precipitation resulted in a low of 61 percent of average at Lima Reservoir and a high of 118 percent of average at Gibson Reservoir. Due to the last few months of above average temperatures, inflows into all of Reclamation's reservoirs were above average, with the exception of Clark Canyon Reservoir which was slightly below average.

Due to the lack of precipitation during the end of February 2015, all of the April-July 2015 water supply forecasts decreased for the March 1, 2015 forecast, except for Gibson and Yellowtail Reservoir. Forecasts ranged from 63 percent of average at Clark Canyon Reservoir to 99 percent of average at Bighorn Lake. March brought more warm temperatures and little to no precipitation to the mountain areas except for the northwestern corner of the state. By the end of March 2015 the year to date mountain precipitation varied from a low of 30 percent of average above Lima Reservoir to 143 percent of average above Lake Sherburne.

TABLE MTT1A
PRECIPITATION IN INCHES AND PERCENT OF AVERAGE
2015 VALLEY PRECIPITATION

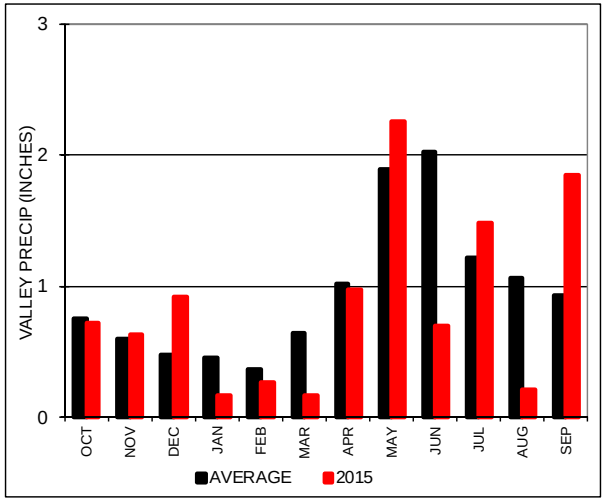
BASIN	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP	
	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
Beaverhead																								
Monthly Average Precip	0.75		0.60		0.48		0.46		0.37		0.64		1.03		1.89		2.02		1.22		1.06		0.94	
Monthly Precip and % of Average	0.72	96	0.64	106	0.92	193	0.17	38	0.27	72	0.17	27	0.97	95	2.25	119	0.70	35	1.48	122	0.21	20	1.85	197
Year-to-Date Precip and % of Average	0.72	96	1.36	101	2.28	125	2.45	107	2.72	103	2.89	88	3.86	89	6.11	99	6.82	83	8.30	88	8.51	81	10.36	91
Jefferson																								
Monthly Average Precip	0.83		0.63		0.52		0.48		0.38		0.68		1.07		2.03		2.19		1.39		1.21		0.97	
Monthly Precip and % of Average	0.59	71	0.73	116	0.82	160	0.15	32	0.22	58	0.32	47	0.96	90	2.00	98	0.86	39	1.65	119	0.26	22	1.81	186
Year-to-Date Precip and % of Average	0.59	71	1.32	90	2.15	109	2.30	94	2.52	89	2.85	81	3.81	83	5.81	88	6.67	76	8.32	82	8.58	75	10.39	84
Madison																								
Monthly Average Precip	1.27		0.71		0.55		0.48		0.48		0.91		1.64		2.54		2.72		1.37		1.38		1.13	
Monthly Precip and % of Average	0.52	41	1.30	185	1.17	213	0.15	32	0.52	109	0.66	72	2.51	153	4.11	162	1.38	51	1.97	144	0.62	45	2.45	217
Year-to-Date Precip and % of Average	0.52	41	1.82	92	3.00	119	3.15	105	3.67	105	4.32	99	6.83	113	10.94	128	12.31	109	14.29	113	14.91	106	17.36	115
Gallatin																								
Monthly Average Precip	1.38		0.90		0.54		0.55		0.54		1.03		1.78		2.81		2.78		1.41		1.21		1.26	
Monthly Precip and % of Average	0.87	63	1.19	132	0.68	125	0.30	55	0.41	75	0.19	19	1.41	79	2.94	105	0.67	24	1.58	112	0.87	72	1.31	104
Year-to-Date Precip and % of Average	0.87	63	2.05	90	2.73	97	3.03	90	3.44	88	3.63	73	5.04	75	7.98	84	8.65	70	10.22	75	11.09	74	12.41	77
Missouri Above Toston																								
Monthly Precip Average	0.98		0.65		0.50		0.46		0.40		0.76		1.27		2.22		2.40		1.38		1.25		1.03	
Monthly Precip and % of Average	0.59	60	0.93	144	0.82	164	0.19	41	0.32	79	0.40	53	1.43	113	2.50	113	0.99	41	1.70	123	0.49	39	1.88	182
Year-to-Date Precip and % of Average	0.59	60	1.52	94	2.34	110	2.53	98	2.85	95	3.25	87	4.68	93	7.18	99	8.17	85	9.87	90	10.37	84	12.25	92
Sun-Teton																								
Monthly Average Precip	1.15		1.18		0.96		1.01		0.90		1.13		1.45		2.30		2.83		1.28		1.44		1.48	
Monthly Precip and % of Average	1.11	96	2.39	203	1.30	136	0.92	91	1.04	116	1.22	108	0.62	43	2.72	118	0.51	18	1.08	84	0.52	36	1.96	133
Year-to-Date Precip and % of Average	1.11	96	3.50	150	4.80	146	5.72	133	6.77	130	7.98	126	8.60	111	11.32	112	11.83	92	12.91	91	13.43	86	15.39	90
Marias																								
Monthly Average Precip	0.59		0.41		0.40		0.33		0.30		0.63		1.01		1.91		2.58		1.35		1.26		1.23	
Monthly Precip and % of Average	0.63	107	1.09	267	0.51	127	0.82	245	0.25	81	0.47	74	0.23	22	1.78	93	1.06	41	1.44	106	0.74	59	2.24	182
Year-to-Date Precip and % of Average	0.63	107	1.72	173	2.23	160	3.05	176	3.30	162	3.77	141	3.99	108	5.77	103	6.83	84	8.27	87	9.01	84	11.26	94
Milk																								
Monthly Average Precip	0.69		0.37		0.31		0.29		0.24		0.42		0.93		2.26		2.63		1.49		1.35		1.09	
Monthly Precip and % of Average	0.51	73	0.38	104	0.18	58	0.46	158	0.17	74	0.46	109	0.58	62	1.65	73	0.82	31	3.41	229	0.55	41	1.21	111
Year-to-Date Precip and % of Average	0.51	73	0.89	84	1.07	78	1.53	92	1.70	90	2.17	93	2.75	85	4.40	80	5.23	64	8.64	90	9.19	84	10.40	86
St. Mary																								
Monthly Average Precip	1.57		2.52		2.03		2.13		1.77		1.94		1.70		2.62		3.30		1.93		1.32		1.89	
Monthly Precip and % of Average	1.26	80	5.95	236	1.24	61	1.30	61	1.76	99	2.98	154	1.30	77	1.83	70	0.10	3	0.89	46	0.69	52	1.16	62
Year-to-Date Precip and % of Average	1.26	80	7.20	176	8.44	138	9.74	118	11.50	115	14.48	121	15.77	116	17.60	108	17.70	90	18.59	86	19.28	85	20.44	83
Bighorn Above Yellowtail																								
Monthly Average Precip	0.87		0.49		0.37		0.30		0.35		0.56		1.05		1.70		1.36		0.90		0.64		1.01	
Monthly Precip and % of Average	0.28	33	0.91	187	0.61	166	0.20	66	0.62	176	0.25	44	0.94	89	3.21	189	1.37	100	0.95	105	0.54	84	0.12	12
Year-to-Date Precip and % of Average	0.28	33	1.20	88	1.81	105	2.01	99	2.63	111	2.88	98	3.82	96	7.03	123	8.39	119	9.34	117	9.88	115	10.00	104

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

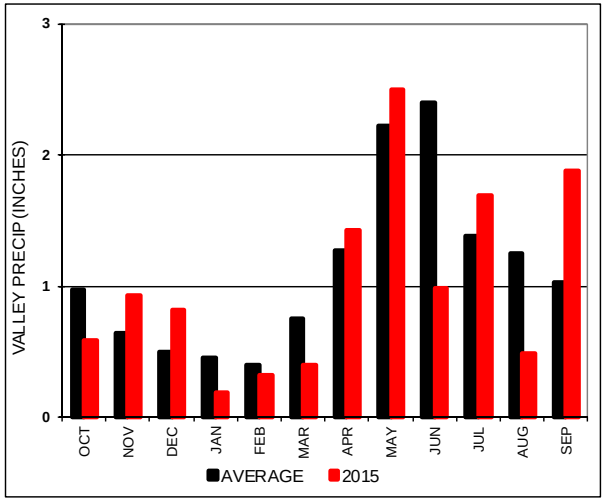
Beaverhead.....Lima and Dillon
Jefferson.....Lima, Dillon, Virginia City, and Boulder
Madison.....Hebgen, West Yellowstone, and Norris Madison
Gallatin.....Bozeman
Missouri Above Toston.....Townsend, Lima, Dillon, Virginia City, Boulder, Hebgen, West Yellowstone, Norris Madison, and Bozeman
Sun-Teton.....Summit, 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
2015 VALLEY PRECIPITATION

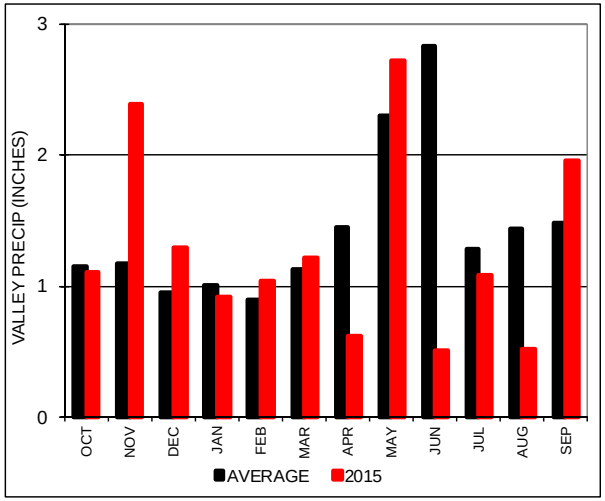
CLARK CANYON RESERVOIR



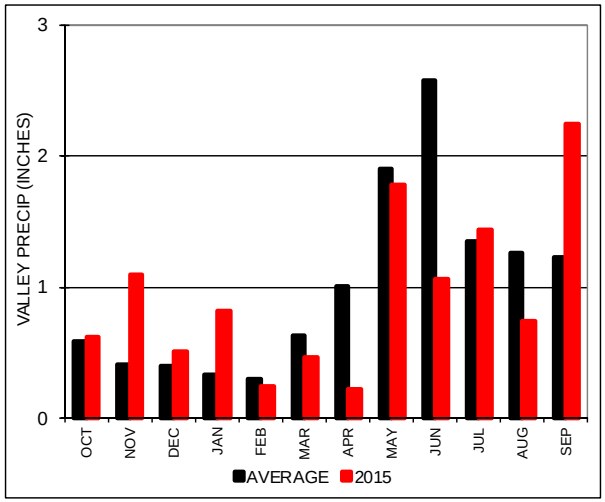
CANYON FERRY RESESRVOIR



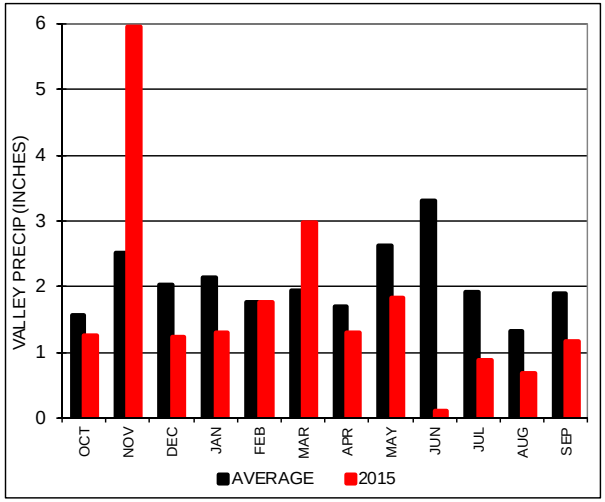
GIBSON RESERVOIR



LAKE ELWELL



LAKE SHERBURNE



BIGHORN LAKE

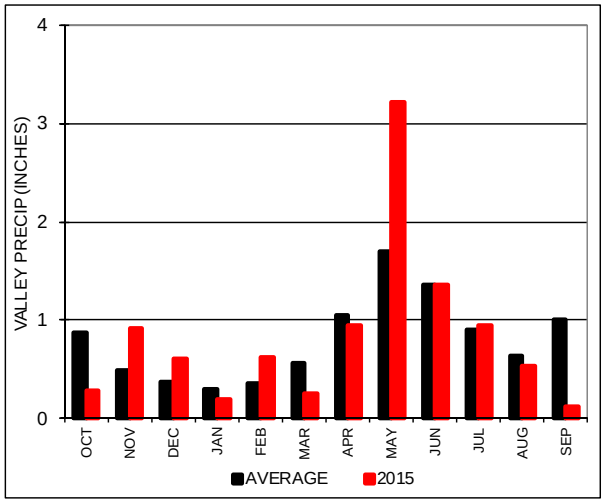


TABLE MTT1B
PRECIPITATION IN INCHES AND PERCENT OF AVERAGE
2015 MOUNTAIN PRECIPITATION

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 Average Precip	2.05		2.43		2.80		2.52		2.14		2.57		2.57		3.05		2.81		1.61		1.36		1.50	
Monthly Precip and % of Average	0.62	30	2.10	87	2.60	93	1.36	54	0.64	30	0.76	30	1.24	48	3.52	115	1.18	42	3.10	193	1.64	120	2.98	198
Year-to-Date Precip and % of Average	0.62	30	2.72	61	5.32	73	6.68	68	7.32	61	8.08	56	9.32	55	12.84	64	14.02	61	17.12	70	18.76	72	21.74	79
Clark Canyon Reservoir																								
Monthly Average Precip	2.18		2.61		2.55		2.43		2.03		2.64		2.98		3.42		3.01		1.51		1.47		1.64	
Monthly Precip and % of Average	1.26	58	2.87	110	3.04	119	1.66	68	1.33	65	1.06	40	1.89	63	3.17	93	2.19	73	3.01	200	1.21	83	2.71	165
Year-to-Date Precip and % of Average	1.26	58	4.13	86	7.17	98	8.83	90	10.16	86	11.21	78	13.10	75	16.27	78	18.46	77	21.47	85	22.69	85	25.40	89
Jefferson Drainage																								
Monthly Average Precip	2.15		2.63		2.64		2.52		2.10		2.64		2.99		3.38		2.97		1.56		1.55		1.67	
Monthly Precip and % of Average	1.44	67	3.32	126	3.08	117	2.00	79	1.58	75	1.16	44	2.13	71	3.57	106	2.02	68	2.76	176	0.98	63	2.36	141
Year-to-Date Precip and % of Average	1.44	67	4.76	100	7.84	106	9.84	99	11.42	95	12.58	86	14.71	83	18.29	87	20.31	85	23.06	90	24.04	89	26.39	92
Madison Drainage																								
Monthly Average Precip	2.89		3.83		4.20		3.94		3.27		3.75		3.81		4.03		3.21		1.79		1.68		1.83	
Monthly Precip and % of Average	1.70	59	3.94	103	4.00	95	2.74	69	1.91	59	1.28	34	2.41	63	4.49	111	1.64	51	3.05	171	1.65	98	2.81	153
Year-to-Date Precip and % of Average	1.70	59	5.64	84	9.64	88	12.38	83	14.29	79	15.56	71	17.98	70	22.46	76	24.10	73	27.15	78	28.80	79	31.61	83
Gallatin Drainage																								
Monthly Average Precip	3.07		3.43		3.45		3.25		2.96		3.93		4.58		4.94		4.11		2.20		2.00		2.14	
Monthly Precip and % of Average	1.73	57	4.30	125	3.70	107	2.83	87	3.23	109	1.87	48	3.53	77	4.30	87	1.57	38	3.73	170	1.87	93	2.40	112
Year-to-Date Precip and % of Average	1.73	57	6.03	93	9.73	98	12.57	95	15.80	98	17.67	88	21.20	86	25.50	86	27.07	80	30.80	86	32.67	86	35.07	88
Canyon Ferry Reservoir																								
Monthly Average Precip	2.41		3.04		3.16		3.01		2.51		3.04		3.32		3.67		3.12		1.64		1.59		1.73	
Monthly Precip and % of Average	1.61	67	3.76	124	3.56	113	2.47	82	1.88	75	1.28	42	2.38	72	3.90	106	1.96	63	2.93	179	1.27	80	2.62	151
Year-to-Date Precip and % of Average	1.61	67	5.37	99	8.93	104	11.40	98	13.28	94	14.57	85	16.94	83	20.84	86	22.80	84	25.73	89	27.00	88	29.62	92
Gibson Reservoir																								
Monthly Average Precip	2.52		3.14		3.02		2.79		2.42		2.72		2.75		3.66		3.68		1.78		2.08		2.17	
Monthly Precip and % of Average	2.68	106	6.25	199	2.83	93	2.38	85	2.25	93	2.25	83	1.53	55	3.95	108	0.55	15	1.08	60	0.68	32	2.15	99
Year-to-Date Precip and % of Average	2.68	106	8.93	158	11.75	135	14.13	123	16.38	118	18.63	112	20.15	104	24.10	105	24.65	92	25.73	90	26.40	86	28.55	87
Lake Elwell Reservoir																								
Monthly Average Precip	2.88		3.83		3.69		3.57		2.96		3.28		3.09		3.92		3.89		1.88		2.09		2.40	
Monthly Precip and % of Average	2.95	103	6.35	166	2.93	79	2.70	76	2.63	89	2.73	83	1.80	58	3.05	78	0.13	3	0.95	51	0.73	35	1.95	81
Year-to-Date Precip and % of Average	2.95	103	9.30	139	12.23	118	14.93	107	17.55	104	20.28	100	22.08	95	25.13	92	25.25	81	26.20	79	26.93	77	28.88	77
Sherburne Reservoir																								
Monthly Average Precip	4.85		7.53		6.84		7.42		5.11		5.35		4.51		4.67		5.12		2.46		1.97		3.23	
Monthly Precip and % of Average	4.40	91	12.35	164	4.60	67	5.30	71	6.25	122	7.65	143	2.30	51	1.90	41	1.35	26	2.10	85	1.30	66	2.80	87
Year-to-Date Precip and % of Average	4.40	91	16.75	135	21.35	111	26.65	100	32.90	104	40.55	109	42.85	103	44.75	97	46.10	90	48.20	90	49.50	89	52.30	89
Bighorn Lake																								
Monthly Average Precip	2.36		2.15		1.97		1.93		1.69		2.55		3.09		3.55		2.80		1.78		1.29		2.12	
Monthly Precip and % of Average	1.19	50	2.89	134	2.15	109	1.71	89	2.02	119	1.19	47	2.10	68	5.56	157	2.76	98	1.73	97	1.19	92	0.68	32
Year-to-Date Precip and % of Average	1.19	50	4.08	90	6.23	96	7.94	94	9.96	99	11.15	88	13.25	84	18.81	97	21.57	98	23.29	98	24.48	97	25.16	92

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

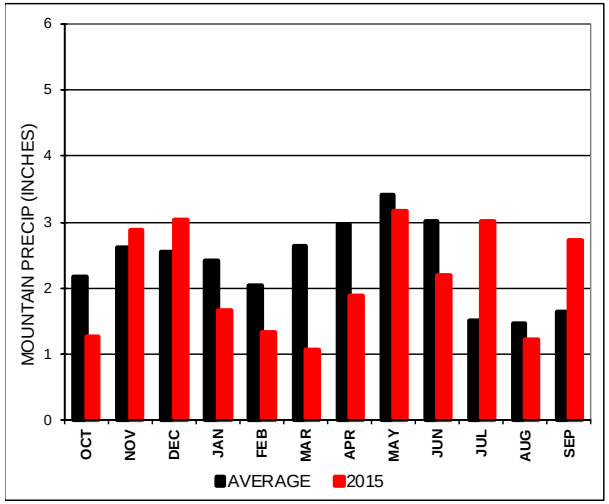
Lake Elwell Reservoir.....Mount Lockhart, Badger Pass, Pike Creek, Dupuyer Creek, and Waldron

Sherburne Reservoir.....Flattop Mountain and Many Glacier

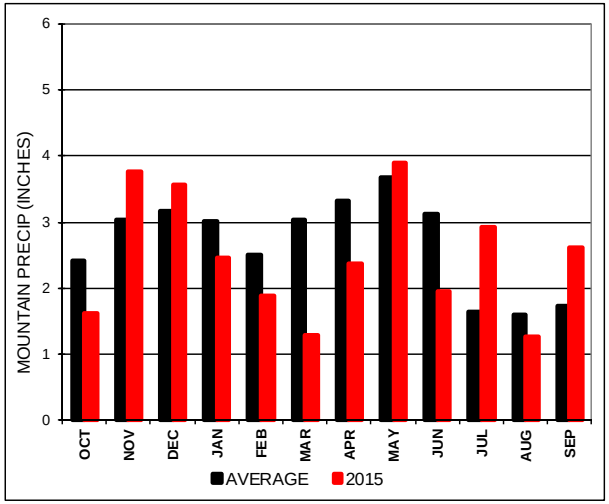
Bighorn Lake.....Kirwin, Blackwater, Evening Star, Shell Creek, Powder River, Bald Mountain, Bone Springs Divide, Owl Creek, Sucker Creek, Dome Lake, Hansen Sawmill, Timber Creek, Bear Trap Meadow, Burgess Junction, Middle Powder, Marquette, Sylvan Lake, and Sylvan Road

TABLE MTT1B-1
PRECIPITATION IN INCHES AND PERCENT OF AVERAGE
2015 MOUNTAIN PRECIPITATION

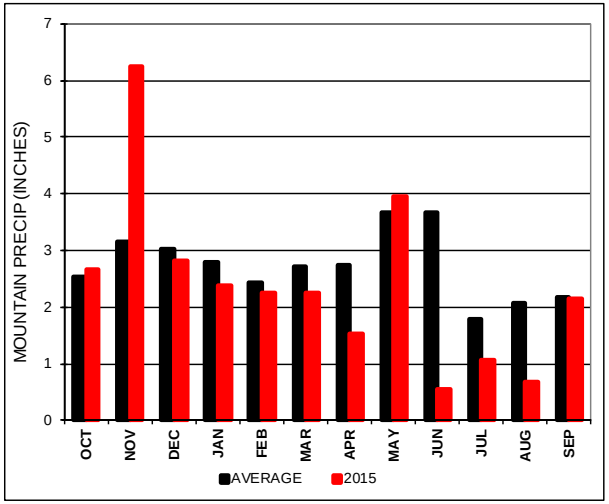
CLARK CANYON RESERVOIR



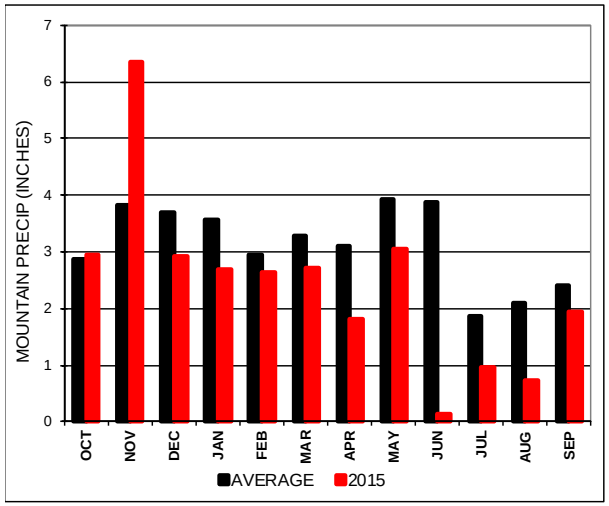
CANYON FERRY RESESRVOIR



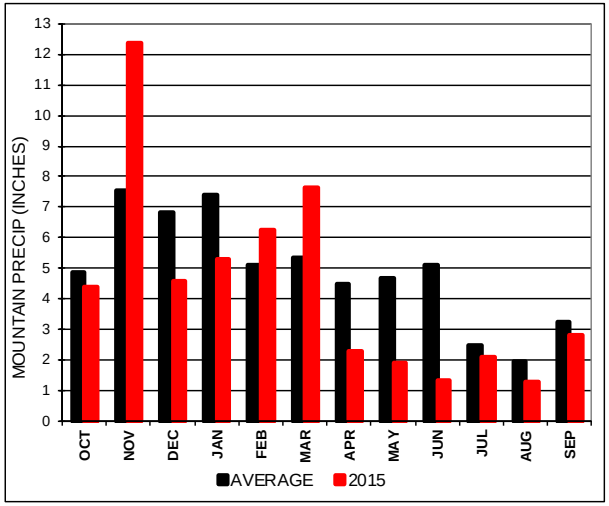
GIBSON RESERVOIR



LAKE ELWELL



LAKE SHERBURNE



BIGHORN LAKE

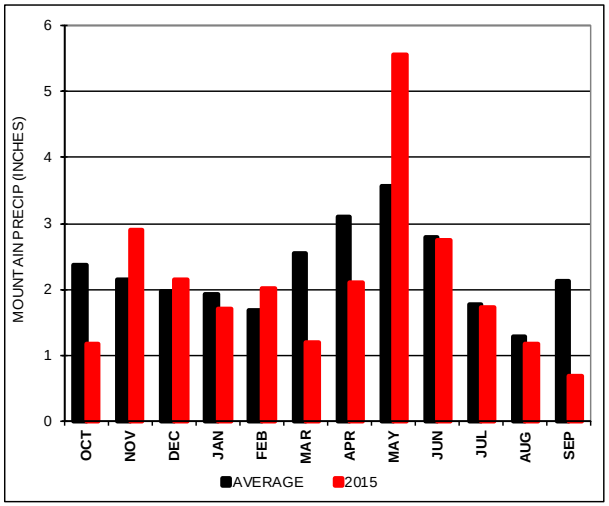


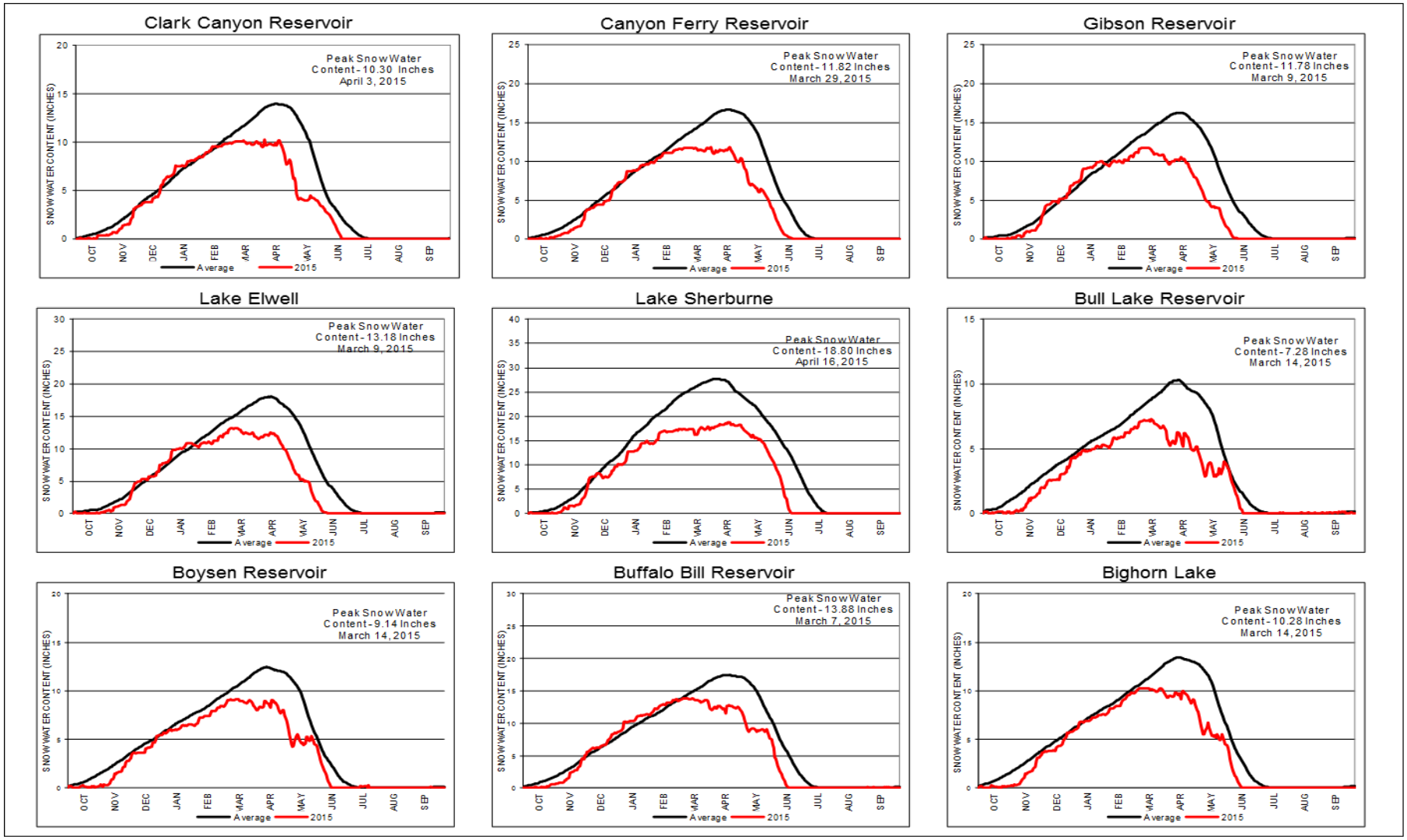
TABLE MTT2
2015 MOUNTAIN SNOW WATER CONTENT
AS A PERCENT OF MEDIAN

DRAINAGE BASIN	JAN 1	FEB 1	MAR 1	APR 1	MAY 1
Beaverhead	111	102	96	71	55
Jefferson	114	107	102	74	64
Madison	87	83	80	62	50
Gallatin	101	98	97	77	63
Missouri Headwaters above Toston	126	122	112	77	61
Sun	126	103	97	54	40
Marias	107	85	79	54	42
Milk River	155	82	48	0	0
St. Mary	106	77	74	53	47
Wind	100	94	101	76	64
Shoshone	108	105	103	75	60
Bighorn (Boysen-Bighorn)	106	106	111	85	69

TABLE MTT3
2015 WATER SUPPLY FORECASTS

RESERVOIR	JAN 1		FEB 1		MAR 1		APR 1		MAY 1		JUN 1		ACTUAL APRIL-JULY		% OF APRIL FORE-CAST REC'D
	1,000 AC-FEET	% OF AVG	1,000 AC-FEET	% OF AVG	1,000 AC-FEET	% OF AVG	1,000 AC-FEET	% OF AVG	1,000 AC-FEET	% OF AVG	1,000 AC-FEET	% OF AVG	1,000 AC-FEET	% OF AVG	
Clark Canyon	69.4	89	56.4	72	49.3	63	22.8	29	17.5	28	26.9	56	43.9	56	193
Canyon Ferry	1,867.8	110	1,661.7	98	1,530.2	90	1,107.5	65	750.0	54	597.0	65	1,150.9	68	104
Gibson	449.3	110	359.2	88	384.1	94	282.0	69	236.0	65	128.0	60	282.6	69	100
Tiber	392.0	105	346.0	93	319.0	86	234.0	63	139.0	44	70.3	37	193.4	52	83
Sherburne	93.1	93	88.5	88	78.3	78	78.0	78	67.0	75	36.5	63	66.0	66	85
Fresno	84.0	103	77.0	95	78.0	96	51.0	93	34.0	78	18.0	74	51.0	63	65
Yellowtail	1,095.7	101	1,015.8	94	1,065,6	99	675.5	62	506.8	54	1,027.0	155	1,542.8	143	228

Figure MTG1
WATER YEAR 2015
SNOW WATER CONTENT



April through June

In a NRCS map shown in Figure 1, the April 1, 2015 current SNOTEL precipitation across Montana was much below normal. The resulting April-July 2015 forecasted runoff volumes ranged from 29 percent of average into Clark Canyon Reservoir to 78 percent of average into Lake Sherburne. With low forested runoff volumes, many of Reclamation's reservoirs were not anticipated to fill unless more precipitation fell within the basins in the coming months. All of Reclamation's reservoirs reached their peak snowpack for the year by the beginning of April 2015, with the exception of Lake Sherburne peaking in mid-April 2015, Table MTG1.

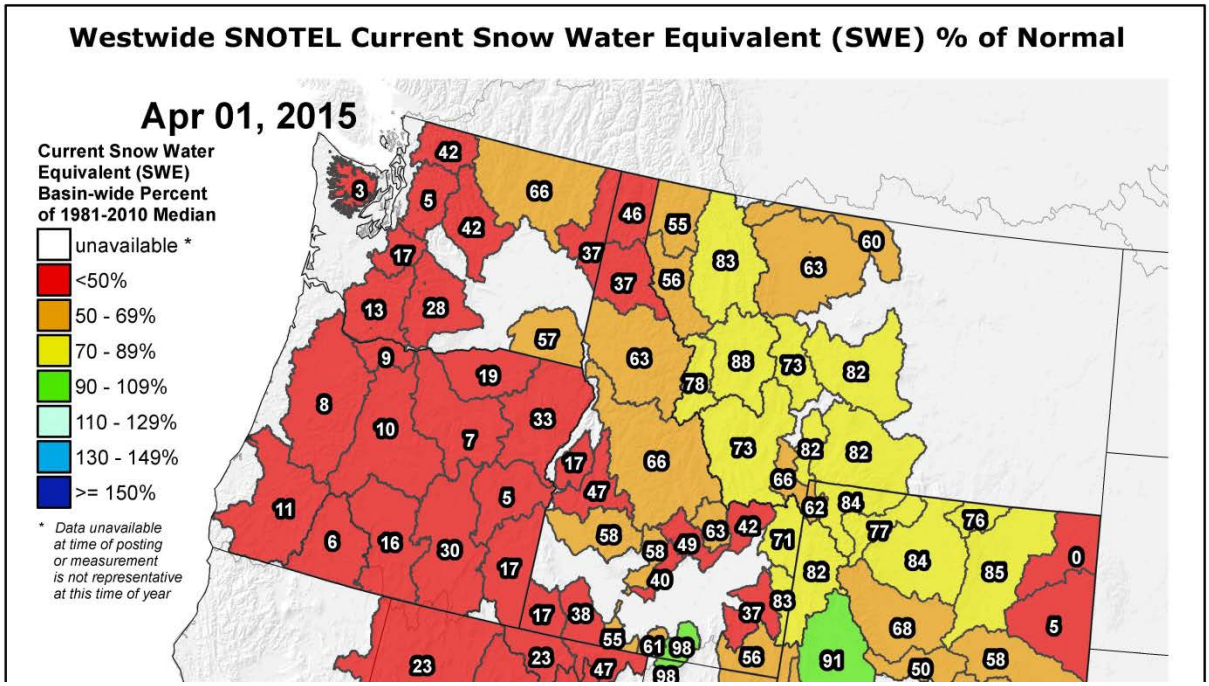


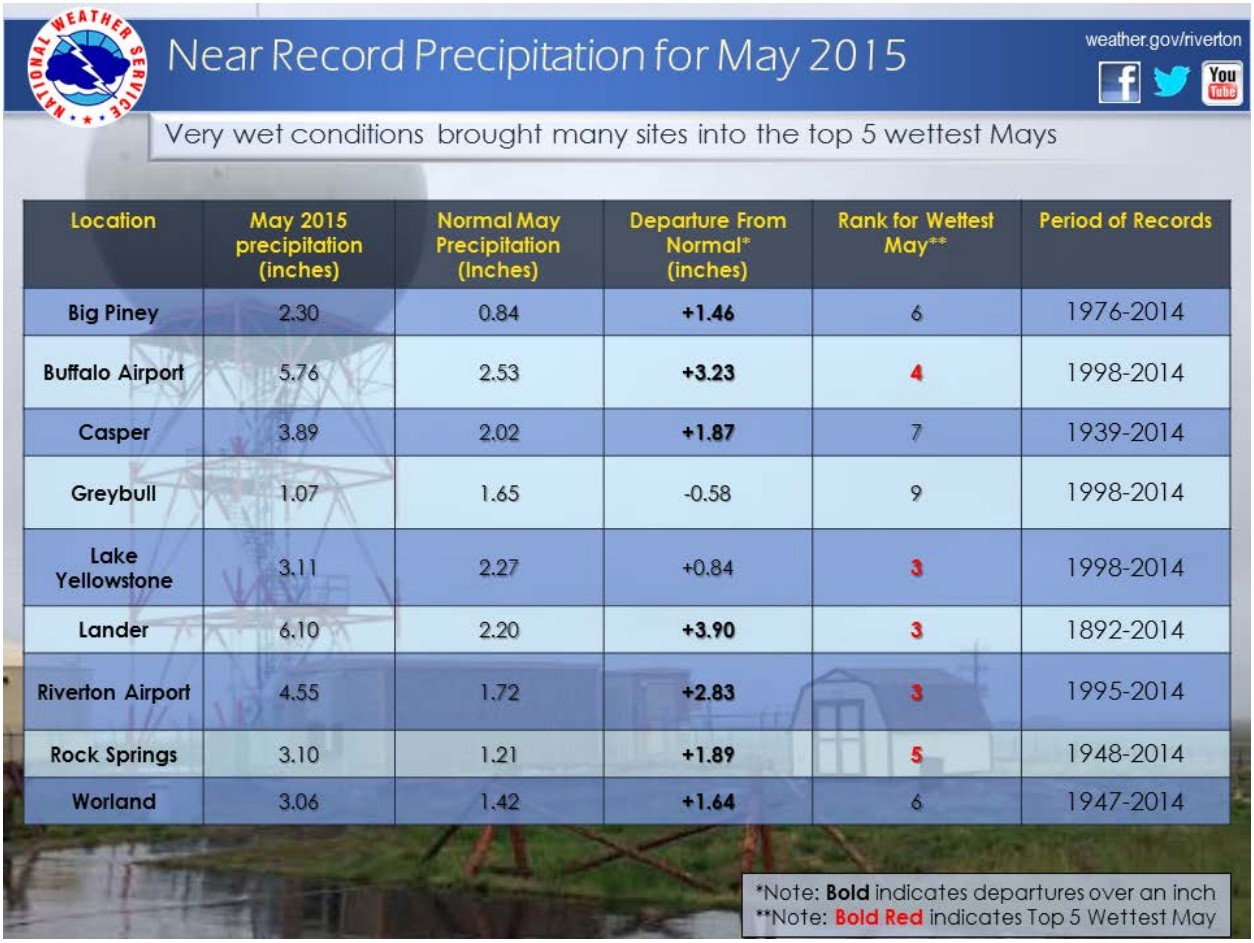
Figure 1. SNOTEL Current Precipitation Percent of Normal (USDA/NRCS Nation Water and Climate Center).

Overall, there were no real cool or warm periods in April 2015. The greatest temperature departures from normal occurred at the end of April 2015, when temperatures averaged 15 to 20 degrees Fahrenheit above normal. Above normal precipitation was limited to a band from near Dillon to Malta. Much of the state recorded below normal values, with the highest amount of 5.20-inches in Gallatin Basin and 3.17-inches in Madison Basin. Montana-wide, the month of April 2015 averaged 0.95-inches, or 0.36-inches below normal.

Again, there were no real cool or warm periods in May 2015 in Montana. The greatest temperature departure from normal occurred mid-month when temperatures averaged 10 to 15 degrees Fahrenheit above normal. Strong thunderstorms pushed across southern Montana beginning May 13 and May 14, 2015, with a 3 to 4 day period of rain over much of the state (except in the southeast) from May 14 to May 17, 2015. Amounts ranged from 1.5 inches to over 4 inches of rain. The heaviest amount was 4.2 inches in the Adel Mountains of southwest Cascade County. As the storm wound down, two inches of snow fell at West Yellowstone on

May 16, 2015. This heavy rain recharged the soil moisture to above normal conditions over most areas of the state of Montana.

As in Montana, the state of Wyoming also experienced rainfall during the month of May 2015. Wyoming was cooler than average across most of the state and was much wetter than average during May 2015. Most meteorological sites within Wyoming experienced precipitation numbers at least in the top ten for wettest Mays. Buffalo, Lake Yellowstone, Lander, Riverton, and Rock Springs even received enough precipitation to be in the top 5 for wettest Mays. See Figure 2 below for site specific rainfall amounts.



Location	May 2015 precipitation (inches)	Normal May Precipitation (Inches)	Departure From Normal* (inches)	Rank for Wettest May**	Period of Records
Big Piney	2.30	0.84	**+1.46**	6	1976-2014
Buffalo Airport	5.76	2.53	**+3.23**	**4**	1998-2014
Casper	3.89	2.02	**+1.87**	7	1939-2014
Greybull	1.07	1.65	-0.58	9	1998-2014
Lake Yellowstone	3.11	2.27	+0.84	**3**	1998-2014
Lander	6.10	2.20	**+3.90**	**3**	1892-2014
Riverton Airport	4.55	1.72	**+2.83**	**3**	1995-2014
Rock Springs	3.10	1.21	**+1.89**	**5**	1948-2014
Worland	3.06	1.42	**+1.64**	6	1947-2014

Figure 2: May 2015 Total Precipitation (inches), Wyoming (National Weather Service)

These amounts of rainfall resulted in Yellowtail Dam (Bighorn Lake) to enter the flood pool space, peaking at an elevation of 3647.83 feet. The maximum daily inflow was 18,947 cfs while the peak daily discharge to the Bighorn River was near 14,000 cfs.

The month of June 2015 turned warm across Montana and Wyoming. Western and Central Montana received below average precipitation, ranging from a low of 3 percent of average in the St. Mary's Basin to a high of 51 percent of average in the Madison Basin. The valley precipitation in the Bighorn Basin above Yellowtail Dam remained near average conditions, as shown in Figure 3 below.

The inflows into Reclamation's facilities for the month of June 2015 ranged from 40 percent of average at Tiber Reservoir to a high of 214 percent of average at Yellowtail Dam.

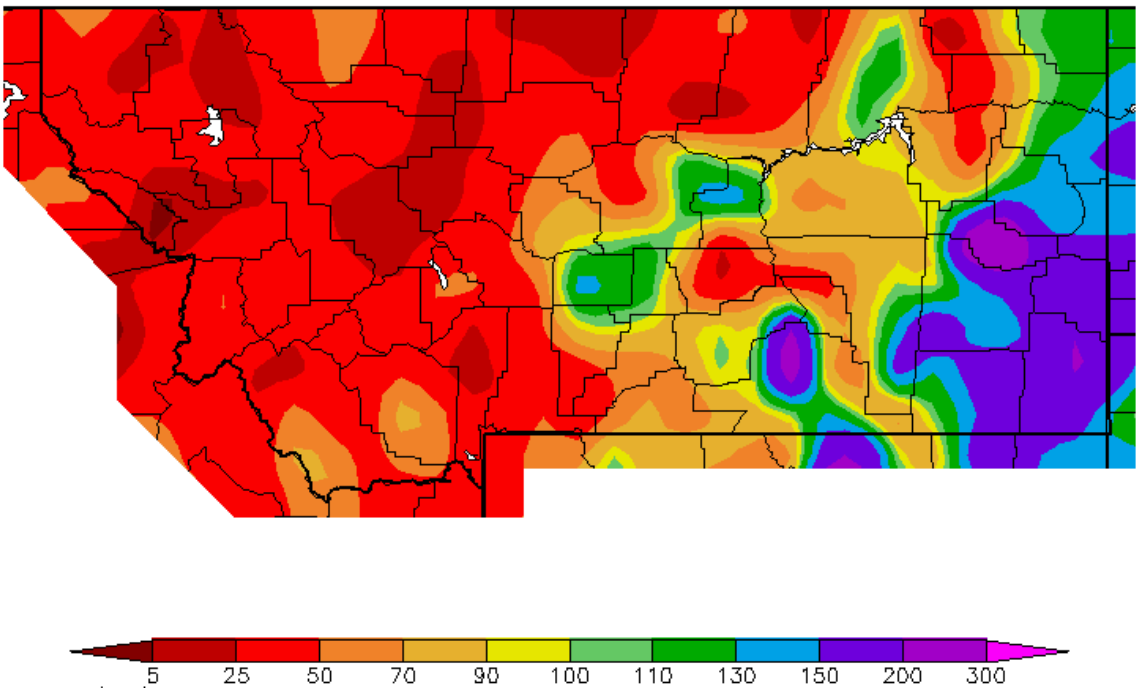


Figure 3. June 2015 precipitation departures from normal (percent) (Western Region Climate Center).

July through September

June 2015 delivered near normal temperatures and mostly below normal precipitation in Montana. The notable exception was over the southeast and central Montana. There were a few record warm high temperatures set early in the month, and a very cool period on June 5, 2015 and June 27, 2015. Above normal precipitation was over southeast Montana, while the western half was dry. By the end of July 2015, the actual April-July 2015 runoff volumes for WY 2015 ranged from 52 percent of average into Tiber Reservoir to 143 percent of average into Yellowtail, Table MTT3.

August 2015 temperatures averaged near normal, while precipitation was mostly below normal. There were a few record warm high temperatures set early during the month, and a very cool period around August 21to August 23, 2015. Record cold low temperatures were set at varied locations on these dates as well. However, a highlight for this period was poor air quality due to smoke from western states and Montana forest fires. The first air quality alert was issued on August 15, 2015, mostly for western Montana. Smoke from western state fires was a major factor in air quality and reduction of visibility across the state.

Temperatures were generally above normal, with widely variable precipitation throughout the state of Montana during September (see Figure 4). By the end of WY 2015 the mountain precipitation was slightly below average for all basins above Reclamation's reservoirs. The Gallatin Basin had a low of 77 percent of average valley precipitation, while the Madison Basin had a high of 115 percent of average valley precipitation.

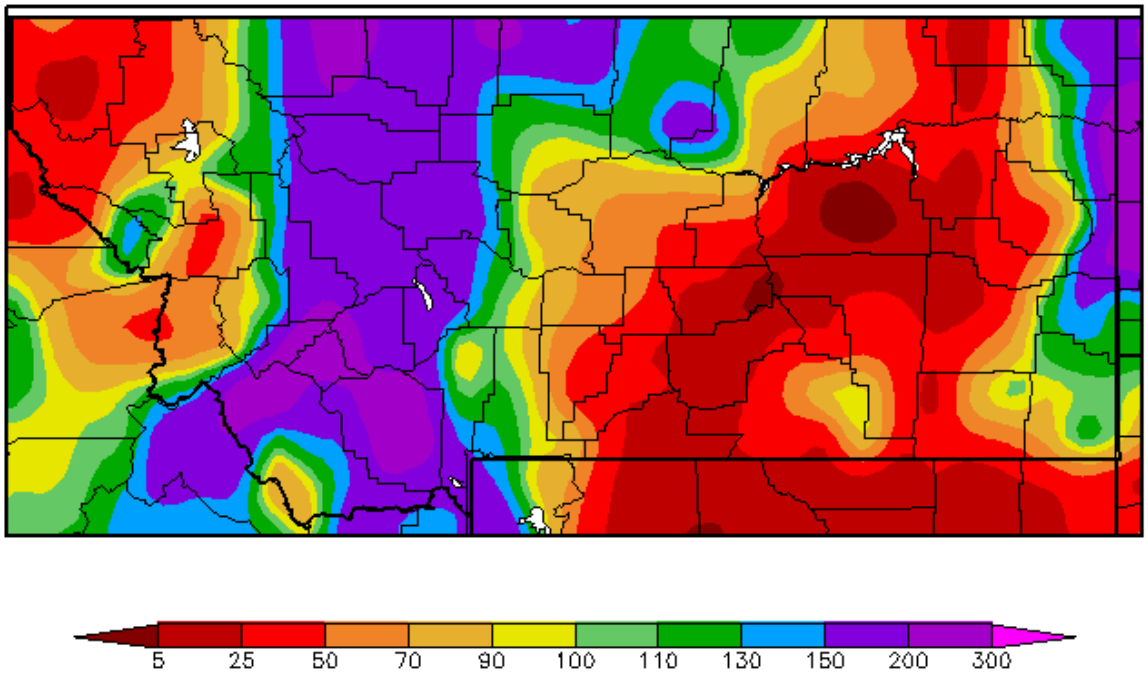


Figure 4. September 2015 precipitation departures from normal (percent) (Western Region Climate Center).

WY 2015 ended with varying storage levels. Gibson Reservoir was at 28 percent of average while Bighorn Lake was 110 percent of average. The Reclamation reservoir with the most amount of carryover storage was Bighorn Lake at 94 percent of full capacity.

WY 2015 inflows to Reclamation facilities in Montana east of the Continental Divide ranged from 65 to 129 percent of average. Due to an increase of spring precipitation, Reclamation was able to maintain flows at minimum fishery flows for most of the summer months.

FLOOD BENEFITS

The Corps evaluated the reservoir regulation data pertaining to Reclamation reservoirs within the jurisdiction of the MTAO and indicated that four reservoirs provided flood relief during WY 2015. 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; and Bighorn Lake on the Bighorn River near Fort Smith. 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	453	257	06/03/15
Canyon Ferry	13,366	4,204	06/03/15
Lake Elwell	2,283	912	06/05/15
Lake Sherburne	1,165	302	06/03/15
Bighorn Lake	18,947	14,006	06/15/15

The Corps estimated the operations of Reclamation reservoirs in Montana during 2015 reduced flood damages by $12,040,300. 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 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 2015" for each reservoir in this report. Figure MTG2 shows the annual flood damages prevented by MTAO reservoirs since 1950.

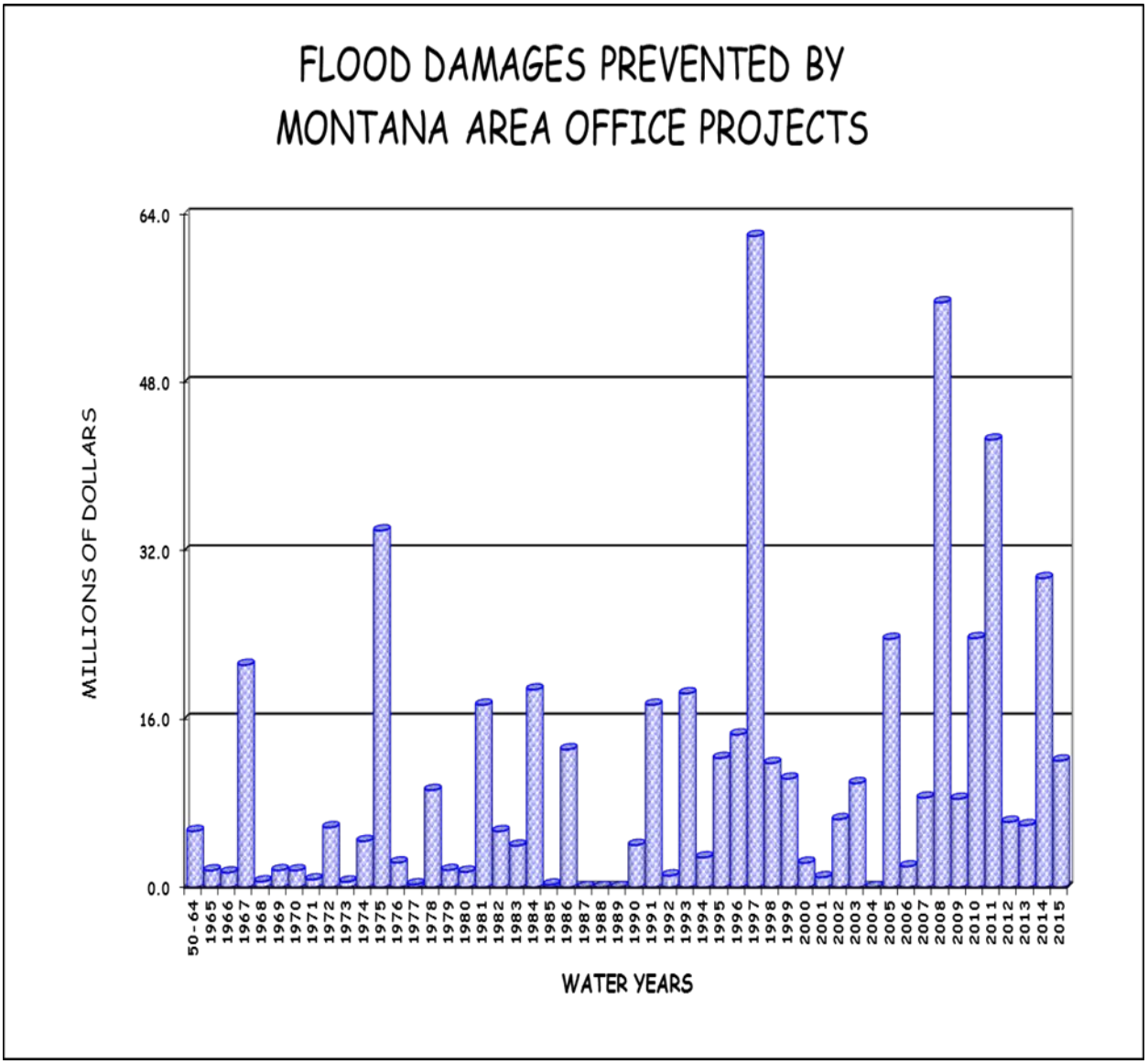
TABLE MTT4
FLOOD DAMAGES PREVENTED
(Thousands of Dollars)

Reservoir	Local	Main Stem	2015 Total	Prev. Accum.	1950-2015 Accum. Total
Clark Canyon	$ 0.0	$ 59.1	$ 59.1	$ 16,068.6	$ 16,127.7
Canyon Ferry	244.7	5,803.4	6,048.1	231,811.4	237,859.5
Gibson[1]	0.0	0.0	0.0	3,085.6	3,085.6
Lake Elwell	0.0	660.3	660.3	95,694.9	96,355.2
Lake Sherburne[2]	0.0	0.0	0.0	10,412.0	10,412.0
Fresno	0.0	0.0	0.0	15,500.9	15,500.9
Bighorn Lake	56.8	5,216.0	5,272.8	165,283.3	170,555.1
Total	$ 301.5	$ 11,738.8	$ 12,040.3	$537,855.7	$549,896.0

[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
16.0
0.0
50-64
1965
1966
1967
1968
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WATER YEARS

UNIT OPERATIONAL SUMMARIES FOR WATER YEAR 2015

Clark Canyon Reservoir

Clark Canyon Reservoir, Pick-Sloan Missouri Basin Program (P-S MBP) project is located on the Beaverhead River approximately 20 miles upstream from Dillon, Montana. It has a total capacity of 257,152 acre-feet (AF) (255,643 AF 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 area-capacity tables. The data was used to calculate reservoir capacity changes since dam closure in August of 1964. The 2000 survey determined that Clark Canyon Reservoir has a storage capacity of 174,367 AF and a surface area of 5,151 acres at a reservoir elevation of 5546.10 feet. Since closure in 1964, the reservoir has accumulated a sediment volume of 4,106 AF below an elevation of 5546.10 feet. This volume represents a 2.3 percent reduction in capacity and an average annual sediment capture of 114.7 AF. The revised area-capacity table was put into effect on October 1, 2001, reflecting the new storage levels.

WY 2015 started with a storage content of 59,215 AF (75 percent of average) at an elevation of 5517.47 feet. The climatic conditions began with warm temperatures and below average precipitation during the month of October 2014. However, November 2014 brought decreased temperatures and wetter conditions across the Beaverhead River Basin. Once again the weather pattern shifted in December 2014 creating warmer temperatures and above average precipitation. By the end of December 2014 the valley precipitation had reached a year to date average of 125 percent while the mountain precipitation year to date average was 119 percent.

On January 1, 2015, the NRCS measured snowpack in the Beaverhead River Basin at 111 percent of median while temperatures averaged about 6 to 8 degrees Fahrenheit above normal. The town of Dillon, MT reached 57 degrees Fahrenheit, their second warmest January temperature of record. Snow accumulation in the Beaverhead River Basin slowed during the month which resulted in a drop in the NRCS's February 1, 2015 snowpack to 102 percent of median. February 2015 continued to bring warmer than average temperatures with mixed amounts of mountain and valley precipitation. By the end of February 2015 the year to date mountain and valley precipitation declined to 86 and 103 percent of average respectively. On March 1, 2015 the measured snowpack in the Beaverhead River Basin continued to decrease to 96 percent of median.

The beginning of March 2015 was cooler and brought a snow storm to southern Montana. However, the rest of March 2015 was extremely dry with warmer temperature in the Beaverhead basin. The mountain precipitation for March 2015 resulted in 40 percent of average while the valley precipitation resulted in 27 percent of average. Inflow into Clark Canyon Reservoir for October 2014 through March 2015 was 57,290 AF, or 64 percent of the 30 year average. Due to

the below average inflows the end of March 2015 Clark Canyon Reservoir elevation was recorded at an elevation of 5534.16 feet, approximately 12 feet below full pool.

On April 1, 2015, the NRCS measured the mountain snowpack to be 71 percent of median. The water supply forecast prepared on April 1, 2015 indicated the April-July 2015 runoff into Clark Canyon Reservoir would be 29 percent of average, totaling approximately 22,800 AF. The forecast also indicated Clark Canyon Reservoir would be 11 feet from filling to the top of the joint use pool. The East Bench Unit Joint Board, consisting of three representatives from each water user entity, met on April 7, 2015 to discuss the water supply outlook for the 2015 irrigation season. The forecast was near a record low for the April-July 2015 runoff projections. Based on this low forecast and much below average storage levels, the Joint Board tentatively set allotments at the second reduced tier (CCWSC - 3.25 AF/acre, EB - 2.25 AF/acre) with the option of raising the reduced allotments in April 2015 if basin conditions improved.

The valley precipitation was normal in the Beaverhead basin during April 2015 while the mountain precipitation was 63 percent of average. On April 3, 2015, the snowpack peaked at 10.30 inches of snow water equivalent, 76 percent of the 30 year average. The snowpack stayed level throughout April 2015. Towards the end of the month temperatures increased, triggering the snowmelt runoff. Due to dryer conditions in the basin, the total inflow for the month of April 2015 was only 5,307 AF, which is near 36 percent of average. Releases from Clark Canyon Reservoir began to increase on April 30, 2015 in preparation for the start of the 2015 irrigation season.

On May 1, 2015, the NRCS measured and indicated the mountain snowpack had rapidly declined to 55 percent of median. Despite the low snowpack, May 2015 brought much needed moisture to the valley. Some locations within the Beaverhead Basin received up to 200 percent of average precipitation. By the end of May 2015 the total inflow to Clark Canyon Reservoir increased to 10,400 AF, which is 70 percent of the 30 year average. The increased precipitation gave the East Bench Irrigation District the opportunity to reduce releases out of Clark Canyon Dam and conserve storage. This much needed precipitation also recharged the dry soil moisture conditions, delayed the remaining snowmelt runoff, and improved inflows into Clark Canyon Reservoir.

Due to the change in climate conditions, Reclamation revised the June 2015 monthly operating plan that resulted in a projected June 2015 through July 2015 total inflow of 26,900 AF. The revised forecast prompted the East Bench Joint Board to hold a meeting to discuss if increases to allotments could occur. Reclamation, the Joint Board and other interested parties reviewed and discussed the revised operating forecast at a June 16, 2015 meeting. With Reclamation in agreement, the Joint Board increased their allotments to the first tier reduction (CCWSC - 3.50 AF/acre, EB - 2.70 AF/acre).

The month of June 2015 returned to warm conditions, however July 2015 brought cooler temperatures and near average precipitation to the east above Lima Reservoir and cooler temperatures and below average precipitation to the west of Clark Canyon Reservoir. Despite the variable weather conditions, inflows into Clark Canyon Reservoir remained near projected

values. By the end of July 2015 Clark Canyon Reservoir was at an elevation of 5522.62 feet or 74,500 AF, 88 percent of average.

Snowmelt runoff during April-July 2015 was well below normal at 56 percent of the 30 year average, totaling an inflow of 43,900 AF. Daily inflows into Clark Canyon Reservoir averaged 89 cfs during April 2015, 169 cfs during May 2015, 225 cfs during June 2015 and 240 cfs during July 2015. These resulted in monthly total inflows of 5,307 AF for April 2015, 10,398 AF for May 2015, 13,403 AF for June 2015 and 14,814 AF for July 2015. The peak inflow for WY 2015 occurred on June 3, 2015, at 453 cfs.

Releases during the April-July 2015 time period averaged 33 cfs during April 2015, 205 cfs during May 2015, 539 cfs during June 2015, and 656 cfs during July 2015. Storage reached the peak for the year of 120,837 AF at an elevation of 5534.94 feet on April 30, 2015. On July 8, 2015, the peak release from Clark Canyon Reservoir was recorded at 812 cfs to meet downstream irrigation demands.

Lima Reservoir is a private irrigation facility located upstream of Clark Canyon Reservoir on the Red Rock River, a tributary of the Beaverhead River. Lima Reservoir did not fill to the top of the conservation pool in WY 2015. Lima Reservoir peaked with a storage content of 63,773 AF (75 percent full) at an elevation of 6579.15 feet on May 31, 2015. On August 3, 2015, all irrigation releases out of Lima Reservoir were discontinued for the year, with the exception of senior water right holders, with storage at an elevation of 6559.89 feet (12 percent full), to conserve storage. The drainage area above Lima Reservoir accounts for about 25 percent of the total drainage area above Clark Canyon Reservoir.

The temperatures remained steady during August 2015. Precipitation across the Beaverhead Basin varied with a high of 90 percent of average to a low of 25 percent of precipitation. September 2015 resulted in slightly increased temperatures with several thunderstorms which produced up to 200 percent of normal precipitation in the Beaverhead Basin.

On September 8, 2015, the East Bench Unit Joint Board held a meeting to discuss winter releases. Reclamation provided reservoir operation plans with a minimum, maximum, and most probable inflows with a 50 cfs winter release. However, with a dry winter inflow forecast and the possibility of another dry spring, Reclamation discussed supporting a winter release of 35 cfs as preferred by the Joint Board. MTFWP supported a higher winter release but understood the conditions of the Beaverhead River Basin.

In response, Reclamation’s letter dated September 29, 2015 stated that under Article 6.g and Exhibit D of Reclamation's Contract Numbers 069F670010 and 069F6700009 with the East Bench Irrigation District and Clark Canyon Water Supply Company includes provisions which encourage working with third parties such as the State of Montana to enhance the environmental health of the Beaverhead River. Measures that could be considered appropriate include, among other considerations, storing water for enhancement purposes, provided the minimum release from Clark Canyon Reservoir is not less than 25 cfs. In accordance with these contracts, Reclamation concurred that a reduction in winter flows from 35 cfs to 30 cfs for the purpose of storing water for a spring 2016 flushing flow is acceptable, provided all parties are in mutual

agreement. This reduction will result in approximately 2,100 AF of banked water for a spring flushing flow if needed. A memorandum of understanding will be created to identify and determine the specific requirements of the flushing flow. Therefore the winter release from Clark Canyon Dam was set at 30 cfs on September 29, 2015.

The majority of the storage water released from Clark Canyon Reservoir during WY 2015 was released during the period from May 1, 2015 through September 30, 2015 to meet the downstream irrigation demands. Beginning on May 1, 2015, storage in Clark Canyon Reservoir declined from 120,795 AF at an elevation of 5534.48 feet to 55,034 AF at an elevation of 5515.90 feet on September 30, 2015. Due to reduced allotments, the EBID water users received approximately 58,262 AF at the point of diversion leaving 3,293 AF of their allotment in the Reservoir and CCWSC used approximately 79,790 AF, leaving 9,406 AF of their allotment in the Reservoir in storage during WY 2015. The total diversion recorded by the river commissioner for the "non-signer" users on the Beaverhead River was approximately 41,876 AF. The irrigation deliveries represent May 1, 2015 through September 30, 2015.

The total annual inflow to Clark Canyon Reservoir during WY 2015 was 65 percent of the 30 year average, totaling approximately 131,700 AF. The total annual release to the Beaverhead River from Clark Canyon Reservoir was 135,905 AF. By the end of September 2015 the total cumulative valley precipitation for the year was 91 percent of average while the total cumulative mountain precipitation for the Beaverhead Basin was 89 percent of average.

The Corps determined that during 2015, Clark Canyon Reservoir prevented $59,100 of main stem flood damages. Since construction of the Clark Canyon Dam in 1965, Clark Canyon Reservoir has reduced flood damages by a total of $16,127,700.

Important Events – WY 2015

October 1, 2014: Clark Canyon Reservoir enters the water year with 59,461 AF of storage at an elevation of 5517.56 feet.

October 3, 2014: Following the 2014 irrigation season, releases from Clark Canyon Reservoir to the Beaverhead River were reduced to approximately 30 cfs for a winter release.

April 30, 2015: Clark Canyon Reservoir reached peak storage content of 120,795 AF at an elevation of 5534.94 feet, which is approximately 11.2 feet below full pool.

April 30, 2015: Releases from Clark Canyon Reservoir were increased to meet irrigation demands.

June 3, 2015: Inflows into Clark Canyon Reservoir peaked at 453 cfs.

July 8, 2015: Releases from Clark Canyon Reservoir reached a peak of 812 cfs to meet downstream water demands from the Beaverhead River.

September 30, 2015: Clark Canyon Reservoir ends the water year with 55,034 AF of storage at an elevation of 5515.90 feet.

TABLE MTT5
HYDROLOGIC DATA FOR 2015
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

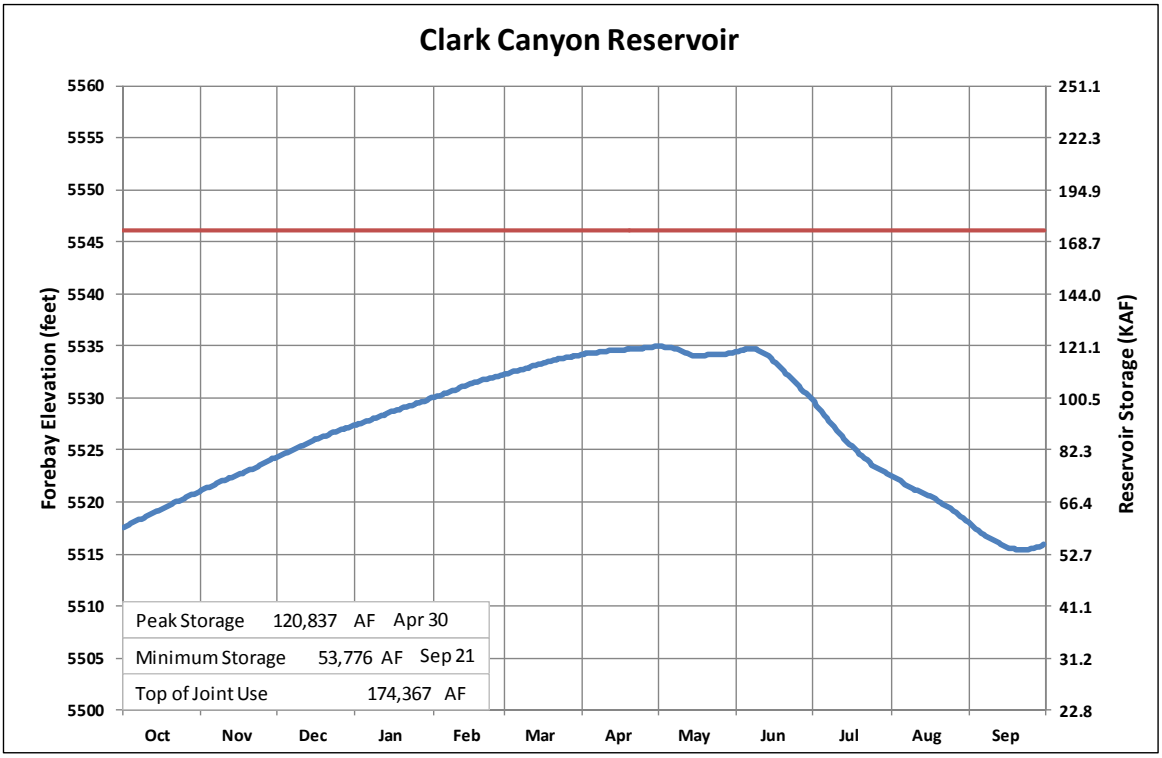
STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	5517.47	59,215	OCT 01, 2014
END OF YEAR	5515.90	55,034	SEP 30, 2015
ANNUAL LOW	5515.41	53,776	SEP 21, 2015
ANNUAL HIGH	5534.94	120,837	APR 30, 2015
HISTORIC HIGH	5564.70	283,073	JUN 25, 1984

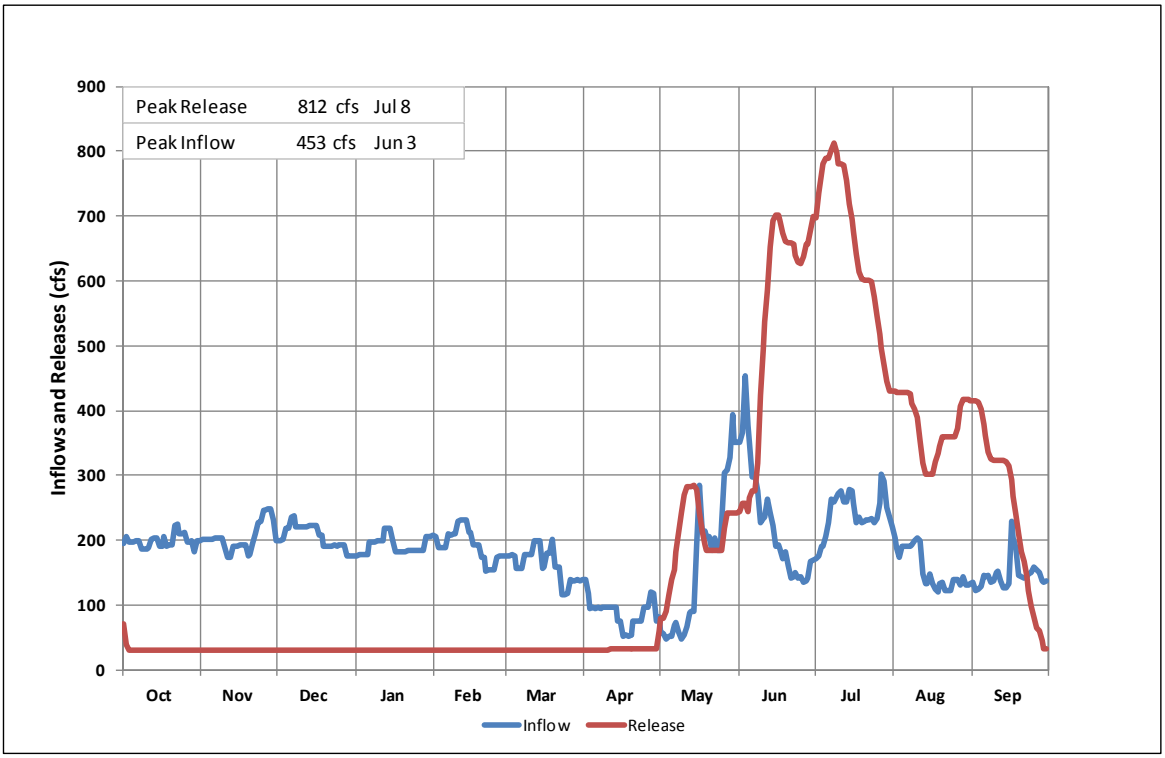
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	131,724	OCT 14-SEP 15	135,905	OCT 14-SEP 15
DAILY PEAK (CFS)	453	JUN 03, 2015	812	JUL 08, 2015
DAILY MINIMUM (CFS)	47	MAY 03, 2015	30	OCT 03, 2014
DAILY FLOW AT BARRETTS (CFS)			942	JUL 08, 2015
DAILY FLOW AT BARRETTS W/O CLARK CANYON RESERVOIR (CFS)			609	JUN 03, 2015
PEAK SPILL (CFS)			0	NONE
TOTAL SPILL (AF)			0	NONE

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	12.2	65	2.0	14	69.5	79
NOVEMBER	12.2	66	1.8	14	79.8	82
DECEMBER	12.6	80	1.9	16	90.6	86
JANUARY	11.8	88	1.9	18	100.5	90
FEBRUARY	10.7	89	1.7	19	109.5	93
MARCH	10.0	66	1.9	20	117.5	93
APRIL	5.4	36	2.0	16	120.9	91
MAY	10.4	68	12.6	46	118.6	96
JUNE	13.4	52	32.0	83	100.0	88
JULY	14.8	68	40.3	87	74.5	83
AUGUST	9.5	62	23.2	62	60.8	83
SEPTEMBER	8.8	57	14.6	71	55.0	73
ANNUAL	131.7	65	135.9	55		
APRIL-JULY	43.9	57				

- Average for the 1965-2015 period.

FIGURE MTG3


Clark Canyon Reservoir
Forebay Elevation (feet)
Reservoir Storage (KAF)
5560
5555
5550
5545
5540
5535
5530
5525
5520
5515
5510
5505
5500
251.1
222.3
194.9
168.7
144.0
121.1
100.5
82.3
66.4
52.7
41.1
31.2
22.8
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Peak Storage 120,837 AF Apr 30
Minimum Storage 53,776 AF Sep 21
Top of Joint Use 174,367 AF


Inflows and Releases (cfs)
900
800
700
600
500
400
300
200
100
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Peak Release 812 cfs Jul 8
Peak Inflow 453 cfs Jun 3
Inflow
Release

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 AF. The top three 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 Lake. 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 AF and a surface area of 34,048 acres at a reservoir elevation of 3800 feet. Since closure in 1953, Canyon Ferry Lake has accumulated a sediment volume of 59,746 AF below a reservoir elevation of 3800.00 feet. This volume represents a 2.91 percent reduction in capacity and an average annual sediment accumulation of 1,345.6 AF. The revised area-capacity table was put into effect on October 1, 1998, reflecting the new storage levels.

The first part of August in WY 2015 was warm and dry. Then about mid-month a strong weather system brought thunderstorms and heavy rain across Montana. Inflows into Canyon Ferry Lake rose from 1,900 cfs to 4,200 cfs. By the end of August 2015 over 200 percent of average precipitation fell in the basin. September 2015 continued with average precipitation and slightly warmer than average temperatures. By the end of WY 2015 Canyon Ferry Lake had a storage content of 1,699,195 AF at an elevation of 3791.11 feet (109 percent of average), with inflows averaging near 3,600 cfs and releases at 4,200 cfs.

WY 2015 started with near normal temperatures and mixed precipitation patterns across the upper Missouri River Basin. Inflows into Canyon Ferry Reservoir was 100 percent of the 30 year average and releases remained at 4,300 cfs as storage was higher than average. November 2014 resulted in slightly cooler temperatures and above average precipitation in the mountains and valleys. By the end of November 2014 the snow water equivalent reached average conditions and inflows declined to 3,600 cfs. The climatic conditions of December 2014 were similar to November 2014. By the end of December 2014 the valley precipitation in the upper river basins had a year to date 109 percent of average in the Jefferson Basin, 119 percent

of average in the Madison Basin, and 97 percent of average in the Gallatin Basin. By the end of December 2014 the storage content of Canyon Ferry Reservoir was at 1,608,002 AF or an elevation of 3788.25 feet.

On January 1, 2015 the NRCS measured the snow-water equivalent of the mountain snowpack in the Missouri River Basin at 126 percent of median. Snow accumulated at near average rates throughout January 2015, while normal temperatures prevailed for the majority of the time. On February 1, 2015 the NRCS measured the snow-water equivalent of the mountain snowpack in the Missouri River Basin at 122 percent of median. February 2015 brought warmer temperatures and steady precipitation through the middle of the month. The second half of February 2015 did not bring much mountain precipitation in two of the three upstream basins and was cooler than normal. This resulted in a monthly mountain precipitation of 75 percent of average in the Jefferson Basin, 59 percent of average in the Madison Basin, and 109 percent of average in the Gallatin Basin.

On March 1, 2015 the NRCS measured the mountain snowpack in the Missouri River Basin at 112 percent of median. Also on March 1, 2015 the forecasted April-July 2015 inflow volume was 90 percent of the 30 year average. The first few days of March 2015 were on the cool side, followed by a long period of generally above normal temperatures, up to 10 degrees Fahrenheit more in some locations. As March 2015 progressed and the snowpack did not accumulate at a normal rate, releases from Canyon Ferry Reservoir to the Missouri River were gradually reduced from 4,900 cfs to 3,900 cfs to conserve storage due to the reduced April-July 2015 runoff volume. The storage content in Canyon Ferry Lake reached a low for the year at 1,505,224 AF at an elevation of 3784.95 feet. By the end of March 2015, the peak snowpack reached 11.82 inches of snow water equivalent or 75 percent of average for the Upper Missouri Basin. Due to a very dry March 2015 the mountain precipitation was 42 percent of average and the valley precipitation was 53 percent of average.

Due to lack of snow accumulation during March 2015, the NRCS April 1, 2015 snowpack significantly dropped to 77 percent of median while Reclamation's April-July 2015 forecasted inflow volume also significantly decreased to 65 percent of average. Due to the declining runoff forecast, releases from Canyon Ferry Reservoir were reduced to maintain flows below Holter Dam near 3,700 cfs. Also the first week of April 2015 was the initiation of diversions for the Helena Valley Irrigation District to the Helena Valley Reservoir.

Overall, there were no real cool or warm periods in April 2015. The greatest temperature departures from normal occurred at the end of April 2015, when temperatures averaged 15 to 20 degrees Fahrenheit above normal. Unlike a dry March 2015, April 2015 brought much needed precipitation to the Upper Missouri Basin as shown in Figure 5 below.

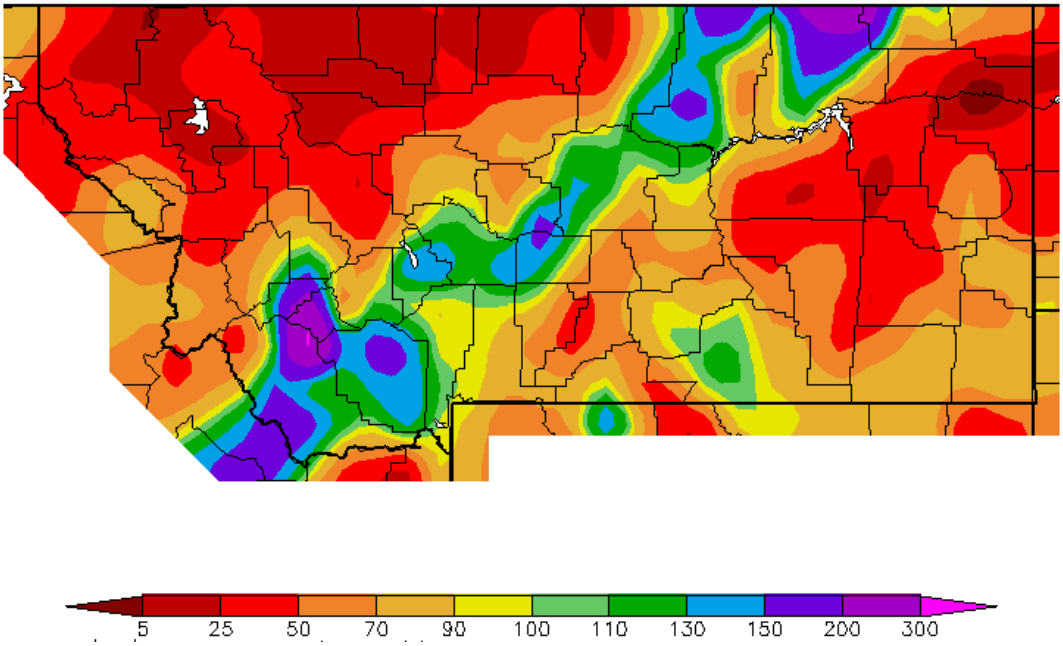


Figure 5. State of Montana April 2015 precipitation departures from normal (percent) (Western Region Climate Center).

May 2015 was cooler than expected and again produced up to 300 percent of average precipitation in some locations within the Upper Missouri River Basin (see Figure 6). The spring rains and slow snowmelt runoff inflows increased from 5,000 cfs on May 3, 2015 to a peak of 13,365 cfs on June 3, 2015. Reclamation monitored inflows as the storage content in the reservoir slowly filled. As the peak inflow occurred, Canyon Ferry Reservoir was approximately three and a half feet from the top of the joint use pool at an elevation of 3797.0 feet. Accordingly, releases were gradually increased to maximum release to the Missouri River of 5,400 cfs. After the peak occurred the inflows began to decline quickly due to warmer temperatures and below average precipitation during June 2015. Releases from Canyon Ferry Reservoir were slowly reduced in order to maintain flows below Holter Dam near 4,100 cfs. By June 19, 2015 Canyon Ferry Lake reached a peak elevation of 3796.85 feet and by June 30, 2015 inflows had declined to 2,150 cfs.

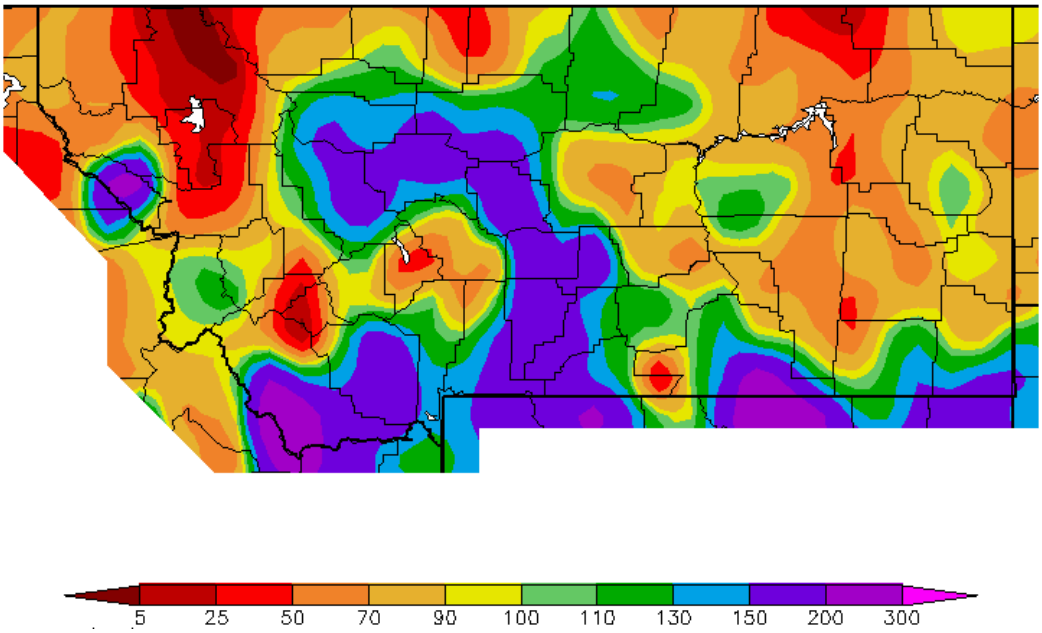


Figure 6. State of Montana May 2015 precipitation departures from normal (percent) (Western Region Climate Center).

July 2015 provided slightly below normal temperatures and above average precipitation. Inflows into Canyon Ferry Lake continued to decline to 41 percent of the 30 year average, a monthly average of 1,800 cfs while 4,100 cfs was maintained to the Missouri River below Holter Dam. The April-July 2015 runoff into Canyon Ferry Lake was 68 percent of average, totaling approximately 1,150,900 AF.

August 2015 exhibited near normal temperatures and continual dryness. Canyon Ferry Lake continued to draft slightly below the 30 year average. Inflows rebounded slightly to 71 percent of average. September 2015 followed with slightly above average temperatures and above average precipitation. Inflows remained near 77 percent of average precipitation, however, storage content of Canyon Ferry Lake was now drafting quickly. To conserve storage, releases were gradually reduced throughout the month to approximately 3,200 cfs to the Missouri River.

By the end of WY 2015 Canyon Ferry Lake had a storage content of 1,486,015 AF at an elevation of 3784.32 feet (95 percent of average), with inflows averaging near 2,200 cfs and releases maintained near 3,400 cfs below Holter Dam. The annual inflow to Canyon Ferry Lake was 84 percent of average, totaling 2,822,900 AF.

During 2015 Canyon Ferry Lake powerplant generated 332,551,000 kilowatt-hours, 88 percent of the long-term average dating back to 1967. Canyon Lake powerplant used 2,683,293 AF, 88 percent of the total water released from the dam in 2015. The other 12 percent of the water was released to meet the irrigation needs of the Helena Valley Irrigation District. (211,493 AF), spilled through the river outlet gates (138,962 AF) and spilled through the spillway gates (2,382 AF).

The Corps estimated that during 2015, Canyon Ferry Lake prevented $244,700 in local flood damages and also prevented $5,803,400 in flood damages downstream on the Missouri River below Fort Peck Reservoir. Since construction of the Canyon Ferry Dam in 1954, Canyon Ferry Reservoir has reduced flood damages by a total of $237,859,500.

Important Events During Water Year 2015

October 6, 2014: Canyon Ferry personnel conducted powerplant outages throughout October 2014 for unit transformer maintenance. During each outage, the turbine releases were restricted and limited to a 2-unit capacity. During non-outage timeframes, all units were available. The river outlet works were utilized during the outages with an approximate 750 cfs release.

December 29, 2014: Northwestern Energy requested an increase in releases due to much colder temperatures being forecasted over the next few days. Releases to the Missouri River were reduced after the colder temperatures returned to near normal later in the week. Canyon Ferry river releases were increased from 4,320 cfs to 5,000 cfs. All releases were made through the powerplant.

January 4, 2015: Releases to the Missouri River were reduced as temperatures returned to near normal conditions. Also, based on preliminary runoff forecasts, releases out of Canyon Ferry will be maintained near 4,700 cfs to meet targeted reservoir elevations by early spring. (≈4,850 cfs through the powerplant and 0 cfs through the river outlet gates).

January 5-22, 2015: Maintenance on Unit Number 1 was conducted therefore the turbine releases were restricted and limited to a 2-unit capacity. (≈ 4,700 cfs through the powerplant and 1,275 cfs through the river outlet gates).

January 26-29, 2015: Canyon Ferry powerplant was limited to 2 units for governor alignment. (≈ 3,600 cfs through the powerplant and 1,080 cfs through the river outlet gates).

February 3, 2015 – March 12, 2015: Maintenance on Unit Number 2 was conducted therefore the turbine releases were restricted and limited to a 2-unit capacity. (≈ 3,600 cfs through the powerplant and 1,080 cfs through the river outlet gates).

February 6, 2015: February 2015 runoff forecast indicated releases out of Canyon Ferry were maintained near 4,900 cfs to meet targeted reservoir elevations by early spring. (≈ 3,750 cfs through the powerplant and 1,150 cfs through the river outlet gates).

March 1, 2015: NRCS snowpack was reported at 112 percent of median.

March 5, 2015: March 2015 runoff forecasts indicated releases out of Canyon Ferry were maintained near 4,700 cfs to meet targeted reservoir elevations by early spring. Unit 2 is still under maintenance. (≈ 3,620 cfs through the powerplant and 1,080 cfs through the river outlet gates).

March 9, 2015: Snowpack is not accumulating at the normal rate; therefore, releases from Canyon Ferry were reduced to meet targeted reservoir elevations by early spring. Unit 2 is still under maintenance. (≈ 3,620 cfs through the powerplant and 880 cfs through the river outlet gates).

March 10, 2015: In close coordination with Montana Fish, Wildlife, and Parks, Canyon Ferry Reservoir releases were further reduced to meet target reservoir elevations and minimize impacts to the spring fishery spawn. (≈ 3,600 cfs through the powerplant and 700 cfs through the river outlet gates).

April 1, 2015: NRCS snowpack was reported at 77 percent of median.

March 16, 2015-April 2, 2015: Maintenance on Unit Number 3 was conducted therefore the turbine releases were restricted and limited to a 2-unit capacity.

March 19-20, 2015: The April-July 2015 runoff forecast declined as the snowpack above Canyon Ferry Reservoir was at 79 percent of average. In close coordination with Montana Fish, Wildlife, and Parks, Canyon Ferry Reservoir releases were reduced to rates that will maintain flows no lower than 4,100 cfs below Holter Dam to better assure filling Canyon Ferry this spring. (≈ 3,700 cfs through the powerplant and 200 cfs through the river outlet gates).

April 2, 2015: Helena Valley Irrigation District (HVID) started pumping water to the Helena Valley. In response, the total release out of Canyon Ferry Lake was increased to 4,110 cfs (≈ 3,625 cfs through the powerplant, 275 cfs through the river outlet gates, and 210 cfs for the HVP). Maintenance on Unit Number 3 was completed by the end of the day. (≈ 3,900 cfs through the powerplant, 0 cfs through the river outlet gates, and 210 cfs for the HVP).

April 5-6, 2015: The snowpack above Canyon Ferry was 70 percent of average and the April / July 2015 runoff forecast was 64 percent of average. In close coordination with Montana Fish, Wildlife and Parks, Canyon Ferry Reservoir releases were reduced to rates that will maintain flows no lower than 3,700 cfs below Holter Dam to better assure filling Canyon Ferry. (≈ 3,500 cfs through the powerplant, 0 cfs through the river outlet gates, and 210 cfs for the HVP).

April 8, 2015: HVID increased diversions to Helena Valley Reservoir. (≈ 3,430 cfs through the powerplant, 0 cfs through the river outlet gates, and 320 cfs for the HVP).

April 13, 2015: HVID increased diversions to Helena Valley Reservoir. Also flows below Holter Dam are maintained near or above 3,700 cfs. (≈ 3,050 cfs through the powerplant, 0 cfs through the river outlet gates, and 650 cfs for the HVP).

April 15, 2015: HVID decreased diversions to Helena Valley Reservoir. Also flows below Holter Dam are maintained near or above 3,700 cfs. (≈ 3,170 cfs through the powerplant, 0 cfs through the river outlet gates, and 430 cfs for the HVP).

April 17, 2015: HVID decreased diversions to Helena Valley Reservoir. Also flows below Holter Dam are maintained near or above 3,700 cfs. (≈ 3,230 cfs through the powerplant, 0 cfs through the river outlet gates, and 220 cfs for the HVP).

April 25, 2015: HVID increased diversions to Helena Valley Reservoir and flows below Holter Dam are maintained near or above 3,700 cfs. (≈ 3,120 cfs through the powerplant, 0 cfs through the river outlet gates, and 430 cfs for the HVP).

April 30, 2015: HVID increased diversions to Helena Valley Reservoir and flows below Holter Dam are maintained near or above 3,700 cfs. (≈ 3,070 cfs through the powerplant, 0 cfs through the river outlet gates, and 540 cfs for the HVP).

May 6, 2015: HVID increased diversions to Helena Valley Reservoir and flows below Holter Dam are maintained near or above 3,700 cfs. (≈ 3,290 cfs through the powerplant, 0 cfs through the river outlet gates, and 750 cfs for the HVP).

May 1, 2015: NRCS measured mountain snowpack at 61 percent of median.

May 19, 2015: Due to recent rain showers, inflows have increased below Holter Dam. Flows were decreased to conserve storage in Canyon Ferry Reservoir and maintain river flows near or above 3,700 cfs below Holter Dam. In response, the total release out of Canyon Ferry Lake was decreased to 3,550 cfs (≈ 2,770 cfs through the powerplant, 0 cfs through the river outlet gates, and 780 cfs for the HVP).

June 2-3, 2015: Frequent rain showers in the basin accompanying the high elevation snowmelt increased flows into Canyon Ferry Dam. HVID decreased diversions. In response, the total release out of Canyon Ferry Lake was increased by 450 cfs and 500 cfs each day. (≈ 3,990 cfs through the powerplant, 0 cfs through the river outlet gates, and 510 cfs for the HVP).

June 3, 2015: Inflow into Canyon Ferry peaked at 13,365 cfs.

June 4-5, 2015: Frequent rain showers continued in the basin increasing flows into Canyon Ferry Dam. To slow the rate of fill, increase in releases were made each day by 650 cfs and 600 cfs per day. (≈ 5,240 cfs through the powerplant, 0 cfs through the river outlet gates, and 510 cfs for the HVP).

June 9, 2015: HVID increased diversions to Helena Valley Reservoir. (≈ 5,100 cfs through the powerplant, 0 cfs through the river outlet gates, and 680 cfs for the HVP).

June 10, 2015: HVID increased diversions to Helena Valley Reservoir. (≈ 5,000 cfs through the powerplant, 0 cfs through the river outlet gates, and 700 cfs for the HVP).

June 13-14, 2015: The high elevation snow essentially melted out, causing inflows into Canyon Ferry to decrease quickly to near 8,500 cfs and continue to decline. To assure filling Canyon Ferry Reservoir to the top of the joint-use pool, turbine releases to the Missouri River were

decreased by 500 cfs per day. (≈ 4,000 cfs through the powerplant, 0 cfs through the river outlet gates, 0 cfs through the spillway gates, and 710 cfs for the HVP).

June 16, 2015: With the high elevation snow essentially melted out, inflows into Canyon Ferry Reservoir have quickly decreased to near 6,000 cfs. To assure filling Canyon Ferry Reservoir to the top of the joint-use pool while maintaining river flows at or above 4,100 cfs below Holter Dam, turbine releases to the Missouri River will continue to be decreased. (≈ 3,800 cfs through the powerplant, 0 cfs through the river outlet gates, 0 cfs through the spillway gates, and 730 cfs for the HVP).

June 17, 2015: Inflows into Canyon Ferry are decreasing. To assure filling Canyon Ferry Reservoir to the top of the joint-use pool while maintaining river flows at or above 4,100 cfs below Holter Dam, turbine releases to the Missouri River will continue to be decreased. (≈ 3,200 cfs through the powerplant, 0 cfs through the river outlet gates, 0 cfs through the spillway gates, and 730 cfs for the HVP).

June 26, 2015: Recent streamflow measurements by the USGS show river flows below Holter Dam are less than 4,100 cfs. To maintain river flows near 4,100 cfs below Holter Dam flows are increased. (≈ 3,300 cfs through the powerplant, 0 cfs through the river outlet gates, 0 cfs through the spillway gates, and 730 cfs for the HVP).

August 12, 2015: In order to conserve storage in Canyon Ferry Reservoir and maintain river flows near 4,100 cfs below Holter Dam, flows were decreased. (≈ 3,200 cfs through the powerplant, 0 cfs through the river outlet gates, 0 cfs through the spillway gates, and 700 cfs for the HVP).

August 17, 2015: HVID decreased diversions to Helena Valley Reservoir. (≈ 3,350 cfs through the powerplant, 0 cfs through the river outlet gates, and 580 cfs for the HVP).

September 1, 2015: HVID decreased diversions to Helena Valley Reservoir. (≈ 3,350 cfs through the powerplant, 0 cfs through the river outlet gates, and 580 cfs for the HVP).

September 9, 2015: HVID decreased diversions to Helena Valley Reservoir. In order to conserve storage in Canyon Ferry Reservoir and maintain river flows near 4,000 cfs below Holter Dam, flows were decreased. (≈ 3,400 cfs through the powerplant, 0 cfs through the river outlet gates, and 375 cfs for the HVP).

September 15-16, 2015: Clearances were placed on the spillway and river outlet works for examination purposes. Flows were maintained. (≈ 3,440 cfs through the powerplant, 0 cfs through the river outlet gates, and 360 cfs for the HVP).

September 17, 2015: Inflows into Canyon Ferry Reservoir continue to remain near 60 percent of average. To control the rate of drawdown and maintain flows below Holter Dam near 3,900 cfs, flows were decreased. HVID also decreased diversions to Helena Valley Reservoir. (≈ 3,300 cfs through the powerplant, 0 cfs through the river outlet gates, and 325 cfs for the HVP).

September 21, 2015: HVID decreased diversions to Helena Valley Reservoir. In order to conserve storage in Canyon Ferry Reservoir and maintain river flows near 3,850 cfs below Holter Dam, flows were decreased. (≈ 3,300 cfs through the powerplant, 0 cfs through the river outlet gates, and 260 cfs for the HVP).

September 30, 2015: Canyon Ferry Reservoir's October operations plans are forecasting below average inflows. In close coordination with Montana Fish, Wildlife and Parks, releases from Canyon Ferry Reservoir will be reduced to control reservoir storage and maintain flows below Holter Dam near 3,400 cfs. (≈ 3,130 cfs through the powerplant, 0 cfs through the river outlet gates, and 225 cfs for the HVP).

October 1, 2015: HVID discontinued all diversions to Helena Valley Reservoir. Flows below Holter Dam are maintained near 3,400 cfs. (≈ 3,313 cfs through the powerplant, 0 cfs through the river outlet gates, and 0 cfs for the HVP).

Additional statistical information of Canyon Ferry Reservoir and its operations during 2015 can be found in Table MTT6 and Figure MTG4.

TABLE MTT6
HYDROLOGIC DATA FOR 2015
CANYON FERRY RESERVOIR

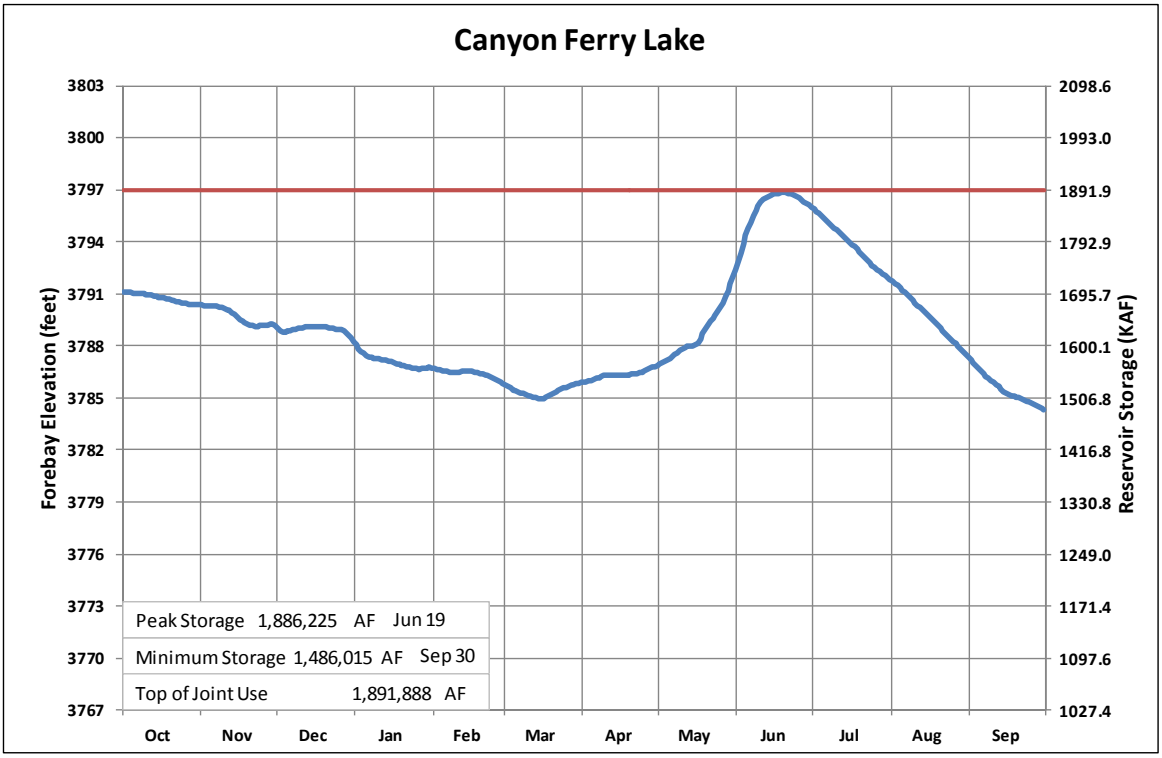
RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	3728.00	396,031	396,031
TOP OF ACTIVE CONSERVATION	3770.00	1,097,599	701,568
TOP OF JOINT USE	3797.00	1,891,888	794,289
TOP OF EXCLUSIVE FLOOD CONTROL	3800.00	1,992,977	101,089

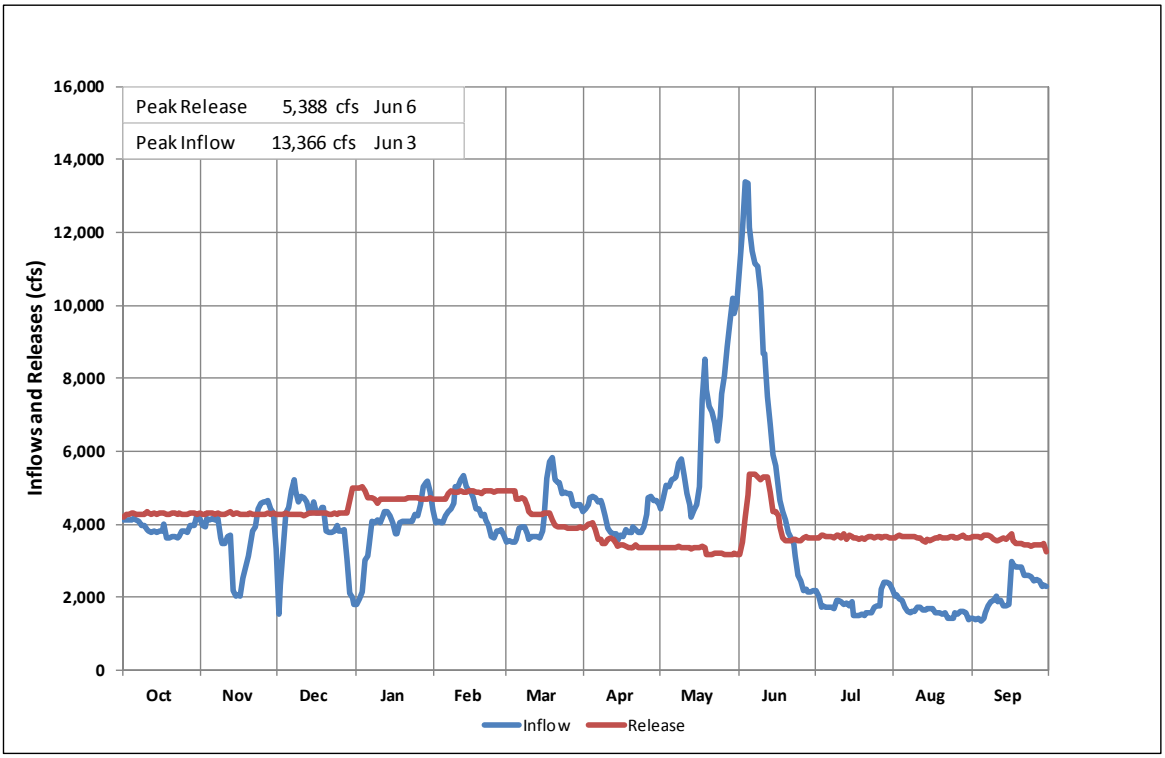
STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	3791.11	1,699,195	OCT 01, 2014
END OF YEAR	3784.32	1,486,015	SEP 30, 2015
ANNUAL LOW	3784.32	1,486,015	SEP 30, 2015
ANNUAL HIGH	3796.83	1,886,225	JUN 19, 2015
HISTORIC HIGH	3800.00	2,050,900	JUN 23, 1964

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	2,822,950	OCT 14-SEP 15	2,930,599	OCT 14-SEP 15
DAILY PEAK (CFS)	13,366	JUN 03, 2015	5,388	JUN 06, 2015
DAILY MINIMUM (CFS)	1,353	SEP 04, 2015	3,154	MAY 19, 2015
PEAK SPILL (CFS)			1,308	FEB 24, 2015
TOTAL SPILL (AF)			141,378	10/06-23/14 01/05-04/12/15

MONTH	INFLOW		OUTFLOW*				CONTENT	
	KAF	% OF AVG	PUMPED TO HELENA VALLEY (KAF)	% OF AVG	RIVER KAF	% OF AVG	KAF	% OF AVG
OCTOBER	240.0	100	0.1	18	263.8	103	1,675.5	107
NOVEMBER	216.6	86	0.0	---	254.9	96	1,637.2	103
DECEMBER	241.1	113	0.0	---	267.1	92	1,608.0	104
JANUARY	243.1	117	0.0	---	290.9	100	1,560.2	105
FEBRUARY	241.8	122	0.0	---	269.7	102	1,532.3	107
MARCH	264.6	105	0.0	---	263.1	89	1,533.8	108
APRIL	248.7	81	8.4	130	209.5	69	1,564.9	109
MAY	399.3	84	21.7	151	202.1	56	1,740.5	110
JUNE	390.7	60	21.3	127	251.2	53	1,858.7	103
JULY	112.2	41	23.2	124	224.3	62	1,723.4	99
AUGUST	100.5	71	21.2	122	223.3	89	1,579.3	97
SEPTEMBER	127.6	77	9.9	110	211.0	92	1,486.0	95
ANNUAL	2,823.0	84	105.5	126	2,930.6	80		
APRIL-JULY	1,150.9	68						

FIGURE MTG4


Canyon Ferry Lake
Forebay Elevation (feet)
Reservoir Storage (KAF)
3803
3800
3797
3794
3791
3788
3785
3782
3779
3776
3773
3770
3767
2098.6
1993.0
1891.9
1792.9
1695.7
1600.1
1506.8
1416.8
1330.8
1249.0
1171.4
1097.6
1027.4
Peak Storage 1,886,225 AF Jun 19
Minimum Storage 1,486,015 AF Sep 30
Top of Joint Use 1,891,888 AF
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


Inflows and Releases (cfs)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Peak Release 5,388 cfs Jun 6
Peak Inflow 13,366 cfs Jun 3
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Inflow
Release

Helena Valley Reservoir

Helena Valley Reservoir is a regulating off-stream reservoir for Helena Valley Unit P-S MBP, located west of Canyon Ferry Reservoir. It has a total capacity of 10,451 AF, 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 October 2014, storage in Helena Valley Reservoir was 8,209 AF at an elevation of 3815.38 feet. Helena Valley Reservoir reached a low for WY 2015 of 6,132 AF at an elevation of 3810.05 feet on April 1, 2015. With new operating criteria in place, goals were to fill Helena Valley Reservoir by May 1, 2015 and maintain it nearly full through June 2015. In response, diversions to the Helena Valley Unit from Canyon Ferry Reservoir were started on April 2, 2015. Storage in Helena Valley Reservoir then steadily increased to a peak of 10,148 AF at an elevation of 3819.61 feet on April 22, 2015. By the end of WY 2015, Helena Valley Reservoir ended with a storage content of 8,618 AF at an elevation of 3816.30 feet. During 2015, 105,531 AF of water was pumped to Helena Valley Reservoir from Canyon Ferry Reservoir. Helena Valley Irrigation District released 83,190 AF for irrigation. All irrigation deliveries were discontinued on October 1, 2015.

The reservoir provided an adequate water supply to satisfy all irrigation requirements for the Helena Valley Unit in 2015 and supplement the city of Helena's municipal water supply.

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

TABLE MTT7
HYDROLOGIC DATA FOR 2015
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	3815.38	8,209	10/01/14
End of Year	3816.30	8,618	09/30/15
Annual Low	3810.05	6,132	04/01/15
Annual High	3819.61	10,214	04/21/15
Historic High	3820.60	10,738	6/02/75

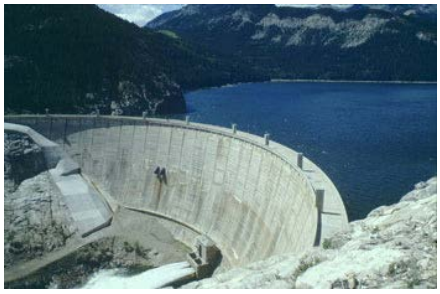
INFLOW-OUTFLOW DATA	ANNUAL
Pumped from Canyon Ferry to Helena Valley Unit	105,531 AF
Inflow to Helena Valley Reservoir	85,652 AF
Released from reservoir for irrigation	83,190 AF
Delivered to the City of Helena for municipal use	2,065 AF

MONTH	RESERVOIR		
	FOREBAY ELEVATION (FEET)	STORAGE CONTENT (KAF)	PUMPED TO HELENA VALLEY (KAF)
OCTOBER	3814.09	7.7	0.1
NOVEMBER	3812.67	7.1	0
DECEMBER	3811.79	6.8	0
JANUARY	3811.27	6.6	0
FEBRUARY	3810.79	6.4	0
MARCH	3810.10	6.1	0
APRIL	3817.59	9.2	8.1
MAY	3819.08	9.9	21.7
JUNE	3819.03	9.9	21.3
JULY	3817.17	9.0	23.2
AUGUST	3818.14	9.5	21.2
SEPTEMBER	3816.30	8.6	9.9
ANNUAL			105.5

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 is located on the Sun River west of Augusta, Montana, and has a total capacity of 96,477 AF. In 2009, a new hydrographic and topographic survey was conducted to measure the reservoir volume. The previous survey was completed in 1996 to measure the reservoir volume changes that may have occurred in the drainage basin since the major forest fires that occurred in 1988. As a result of the 2009 survey, a new elevation-area-capacity table and curve were developed.



The 2009 survey resulted in a capacity increase of 2,211 AF at an elevation of 4724.0 feet from the previous survey conducted in 1996. This measured increase was likely due to more detailed data collection and improved geographic information system capabilities since 1996. Therefore, the 2009 survey determined that Gibson Reservoir has a storage capacity of 98,688 AF and a surface area of 1,334 acres at a reservoir elevation of 4724.0 feet (top of active conservation). Since closure in 1929, the reservoir has accumulated a sediment volume of 6,172 AF below the reservoir elevation of 4724 feet. The revised area-capacity table was placed into effect on January 1, 2013, reflecting the new storage levels.

The spillway crest is at an elevation of 4712.0 feet (83,248 AF). Depending on the runoff conditions and reservoir levels, the spillway gates remain open during the spring runoff season 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 another 12 feet to the top of the conservation pool at an elevation of 4724.0 feet (98,688 AF).

Gibson Reservoir began WY 2015 with a storage content of 16,454 AF or an elevation of 4634.69 feet. This was 37 percent of average and 7 percent of capacity. At the conclusion of the 2015 irrigation season, fall releases from Gibson Reservoir continued to be diverted to Willow Creek Reservoir to bring the reservoir storage back to desired winter carry-over levels, as well as to prevent the need to move water before the snow had a chance to settle in the canals. Once all diversions to Willow Creek Reservoir were discontinued for the

year, winter releases to the Sun River were reduced and maintained between 200 cfs and 300 cfs.

During WY 2015, the valley precipitation in the Sun River Basin was near average for October 2014 and during most of November 2014. A late November 2014 storm brought a new monthly total, 199 percent of average mountain precipitation and 203 percent of average valley precipitation. The trend continued into the month of December 2014 resulting in a cumulative valley precipitation for October 2014 through December 2014 of 146 percent of average while the cumulative mountain precipitation was 135 percent of average.

On January 1, 2015, the NRCS measured the snow-water equivalent in the mountain snowpack in the Sun River Basin at 126 percent of median. January 2015 and February 2015 were both warmer months which ranged from 2 to 6 degrees Fahrenheit above normal. Precipitation in the Sun River Basin remained near average for valley precipitation, and up to 15 percent below average for mountain precipitation throughout January 2015 and February 2015. Due to the decrease in mountain precipitation, the NRCS measured the March 1, 2015 snow-water content at 97 percent of median.

Temperatures during March 2015 were 6 to 10 degrees Fahrenheit above average while precipitation ranged from 25 to 70 percent of average in the Sun and Teton Basins. Due to the warm temperatures melting the low elevation snow, inflows into Gibson Reservoir increased from 200 cfs to near 2,500 cfs by March 16, 2015. Inflows remained high for the rest of March 2015 resulting in a total inflow of 48,200 AF, or 342 percent of average. Gibson Reservoir filled 41.1 feet, resulting in an end of month elevation of 4690.10 feet, or 34 feet from full pool.

The NRCS measured the April 1, 2015 snow-water content at 54 percent of median. On April 1, 2015 Reclamation forecasted an April-July 2015 runoff volume into Gibson Reservoir of 282,000 AF, 69 percent of average, which was modeled as enough volume to refill all the reservoirs (Gibson, Willow Creek, and Pishkun) however late season inflows would not keep up with full irrigation demands. On April 14, 2015 Reclamation and the Greenfield Irrigation District Board discussed the below average April-July 2015 water supply forecast. The Board then set reduced allotments for the upcoming irrigation season. Greenfield Irrigation District began refilling Pishkun Reservoir through the Pishkun Supply Canal on April 21, 2015.

Inflows into Gibson Reservoir slowed as temperatures returned to near normal conditions, but inflows still remained higher than average (139 percent) for the month of April 2015. Greenfield Irrigation District and Reclamation continued to monitor inflows, releases, and remaining snow pack. Releases to the Sun River during April 2015 increased from 380 cfs to approximately 1,000 cfs to control the rate of fill in Gibson Reservoir. On April 30, 2015, the storage level of Gibson Reservoir was at an elevation of 4709.91 feet, 14.09 feet below the top of the conservation pool.

The weather conditions through May 2015 were slightly below normal temperatures and slightly above average precipitation with 108 percent in the valley and 118 percent in the mountain areas. The snow water equivalent at the beginning of May 2015 was near 6.8 inches. At that time, the peak inflow was anticipated to be less than 3,000 cfs, therefore all the spillway gates were closed to fill the remaining pool. The melt continued at a steady rate and storage in Gibson Reservoir continued to increase. Near the end of May 2015, Gibson Reservoir reached the top of the conservation pool with 1.0 inch of snow water equivalent remaining. By May 31, 2015, inflows quickly reached 2,900 cfs and on June 2, 2015 the peak inflow of 3,140 cfs was recorded. Concurrently, to control the rate of fill, releases were gradually increased to the peak for the year at 3,400 cfs to the Sun River over the Sun River Diversion Dam on June 2, 2015.

For the remainder of the runoff season, releases were adjusted as necessary to meet irrigation demands while keeping Gibson Reservoir full. Inflows during June 2015 quickly receded to 450 cfs, 25 percent of average, as temperatures were above normal and little to no moisture fell within the basin. The valley precipitation was 18 percent of average and the mountain precipitation was 15 percent of average during June 2015.

Weather conditions improved to normal temperatures and moisture in July 2015, however, irrigation demands far exceeded inflows into Gibson Reservoir. The below average snowpack and warm temperatures produced an actual April-July 2015 runoff total of 282,600 AF, 69 percent of average for the basin. The inflows during April 2015 were 139 percent of average, May 2015 were 71 percent of average, June 2015 were 57 percent of average, and July 2015 were 40 percent of average.

Temperatures during August 2015 remained steady, however, severe dry conditions returned to the basin. The valley precipitation in August 2015 was 36 percent of average, while the mountain precipitation was 32 percent of average. Irrigation deliveries through the Pishkun Supply Canal were discontinued on August 5, 2015 due to the much below average inflow conditions. August 6, 2015, Gibson Reservoir storage reached 6,000 AF. From this point forward releases from Gibson Reservoir were adjusted to meet downstream senior water rights and minimum river flows.

September 2015 weather was normal with above average precipitation in the Sun River Basin. The August 2015 through September 2015 inflow to Gibson Reservoir totaled 23,100 AF, 57 percent of average. Gibson Reservoir ended WY 2015 with a content of 5,371 AF of storage at an elevation of 4609.77 feet on September 30, 2015. This was 28 percent of average and 5 percent of normal full. Total annual inflow to Gibson Reservoir for WY 2015 was 81 percent of average.

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 2015, Gibson Reservoir did not contribute to the reduction of flood damages locally or downstream on the Missouri River below Fort Peck Reservoir. Since 1950 Gibson Reservoir has prevented $3,085,600 in flood damages.

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 AF at an elevation of 4370.0 feet.

In 2002, Reclamation surveyed Pishkun Reservoir to develop a topographic map and compute area-capacity tables. The data was used to calculate reservoir capacity since the previous survey was completed in 1940. The 2002 survey determined that Pishkun Reservoir has a storage capacity of 46,694 AF and a surface area of 1,522 acres at a reservoir elevation of 4370.0 feet. The survey results show that the total reservoir capacity in 2002 is slightly greater in volume than the original published volume. The small difference between the 1940 and 2002 surveys is likely due to the differences in the methods and equipment used to perform the two surveys. 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 2014 irrigation season were discontinued on October 2, 2014. Reservoir content in Pishkun Reservoir at the beginning of WY 2015 was 36,092 AF at an elevation of 4362.61 feet.

Storage during the fall and winter of WY 2015 was maintained between 36,500 AF and 35,000 AF due to evaporation and system losses. Diversions to refill the reservoir began near April 21, 2015. On April 29, 2015, irrigation releases from Pishkun Reservoir began. On April 30, 2015 the storage had successfully reached the top of active conservation pool at an elevation of 4370.0 feet.

Once irrigation releases began, storage fluctuated, based on meeting irrigation demands. A maximum release of approximately 1,700 cfs was recorded on June 18, 2015 and the maximum inflow of 1,438 cfs was on July 27, 2015. All diversions from the Sun River into Pishkun Reservoir were discontinued on August 17, 2015. All irrigation releases out of Pishkun Reservoir were discontinued on August 22, 2015 due to the limited water supply.

Greenfields Division delivered a reduced allotment to all of its water users in 2015 due to the limited water supply. Approximately 235,500 AF of water was released from Pishkun Reservoir from April 29, 2015 through August 22, 2015 to help meet the irrigation demands on the Sun River Project. By the end of WY 2015, Pishkun Reservoir storage was 21,587 AF at an elevation of 4349.08 feet. This was 74 percent of average and 46 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 obtains its water supply from Willow Creek and the Sun River via the Willow Creek Feeder Canal. The total reservoir capacity is 32,300 AF at an elevation of 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 area-capacity tables. The data was used to calculate reservoir capacity since dam closure in 1911. The 2002 survey determined that Willow Creek Reservoir has a storage capacity of 34,819 AF 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 AF below the reservoir elevation of 4144.00 feet. 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.

Reservoir content in Willow Creek at the beginning of WY 2015 was 24,322 AF at an elevation of 4136.63 feet. Since storage in Willow Creek Reservoir was lower than average to start WY 2015, diversions continued until November 31, 2014. These diversions throughout the fall and early winter gained approximately 4,400 AF of storage or 3.2 feet in reservoir elevation.

Willow Creek Reservoir reached a peak storage content of 31,687 AF at an elevation of 4141.89 feet on June 2, 2015. This storage level was 111 percent of average and was at 99 percent of full capacity. The peak inflow for the year was 51 cfs on June 17, 2015 due to natural runoff.

To help meet irrigation demands within the Sun River Irrigation Project releases were made from Willow Creek Reservoir from June 21, 2015 through August 9, 2015. Approximately 15,550 AF of storage was released from Willow Creek Reservoir to help meet the irrigation demands in 2015.

Diversions from the Sun River to Willow Creek Reservoir did not occur in WY 2015 until September 17, 2015 at a rate of approximately 75 cfs due to the limited water supply during the summer months.

Willow Creek Reservoir ended WY 2015 on September 30, 2015 with a storage content of 17,529 AF at an elevation of 4131.16 feet. This was 88 percent of average and 55 percent of normal full capacity. However, fall and winter diversions continued into Willow Creek Reservoir in an attempt to refill the reservoir to a content of 28,000 AF.

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

Important Events – WY 2015

November 11, 2014: Diversion to Willow Creek was discontinued.

January 1, 2015: NRCS snowpack was reported at 126 percent of median.

February 1, 2015: NRCS snowpack was reported at 103 percent of median.

March 1, 2015: NRCS snowpack was reported at 97 percent of median.

March 9, 2015: The snowpack in the Sun River basin reached a peak accumulation of 11.8 inches.

April 1, 2015: NRCS snowpack was reported at 54 percent of median.

April 21, 2015: Diversions to the Pishkun Supply Canal were initiated.

May 1, 2015: NRCS snowpack was reported at 40 percent of median. Storage in Pishkun Reservoir reached peak content for the year of 47,199 AF at an elevation of 4370.33 feet.

June 2, 2015: Inflows into Gibson Reservoir peaked at 3,140 cfs while peak outflow from Gibson Reservoir was 3,080 cfs. Storage in Gibson Reservoir reached the top of the conservation pool at an elevation of 4724 feet. Storage in Willow Creek Reservoir reached peak content for the year of 31,555 AF at an elevation of 4141.89 feet.

June 11, 2015: Releases out of Willow Creek Reservoir were initiated.

June 20, 2015: Peak Release from Pishkun Reservoir is 1,709 cfs.

June 28, 2015: Willow Creek Reservoir peak release of 199 cfs.

August 6, 2015: Diversions to Pishkun Supply Canal were discontinued for WY 2015.

August 9, 2015: Releases from Willow Creek Reservoir were discontinued for WY 2015.

August 22, 2015: Releases from Pishkun Reservoir for irrigation deliveries were discontinued for WY 2015.

September 8, 2015: Diversion from the Sun River Diversion Dam to the Willow Creek Feeder Canal was initiated for WY 2015.

TABLE MTT8-A
HYDROLOGIC DATA FOR 2015
GIBSON RESERVOIR (SUN RIVER PROJECT)
NEW SEDIMENT SURVEY DATA EFFECTIVE 01/01/2013

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	98,687	98,687

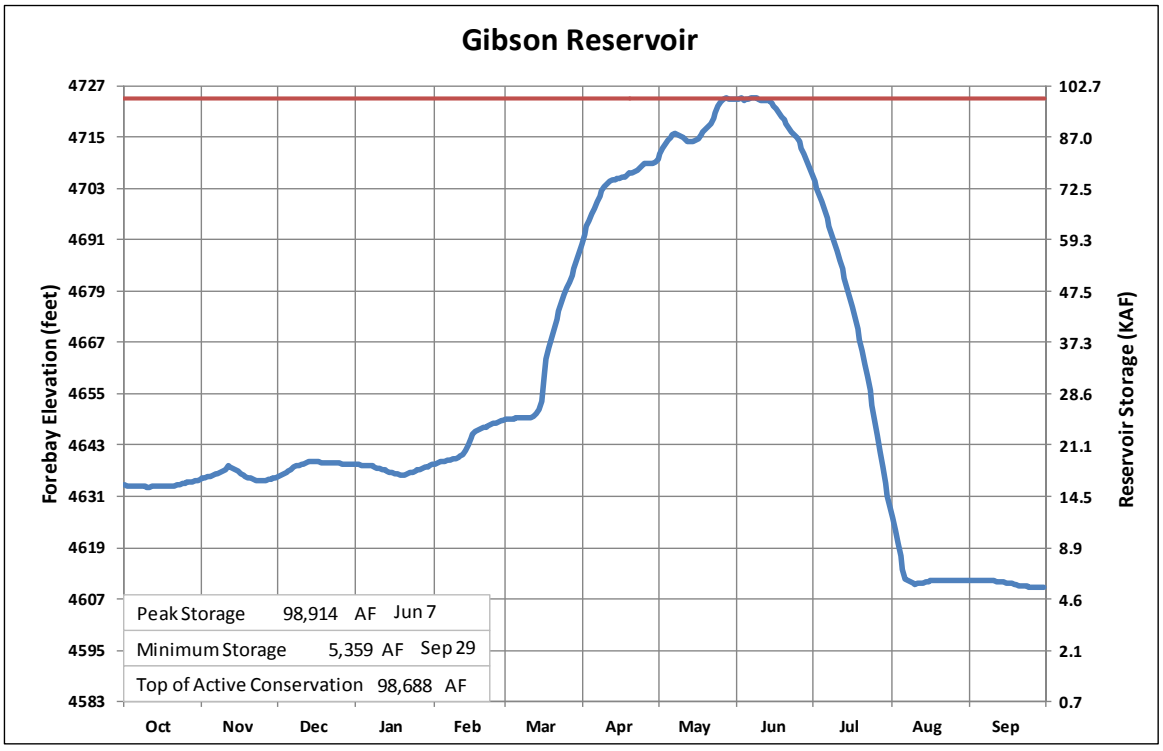
STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4634.69	16,454	OCT 01, 2014
END OF YEAR	4609.77	5,371	SEP 30, 2015
ANNUAL LOW	4609.73	5,359	SEP 29, 2015
ANNUAL HIGH	4724.17	98,914	JUN 07, 2015
HISTORIC HIGH	4732.23	116,400	JUN 08, 1964

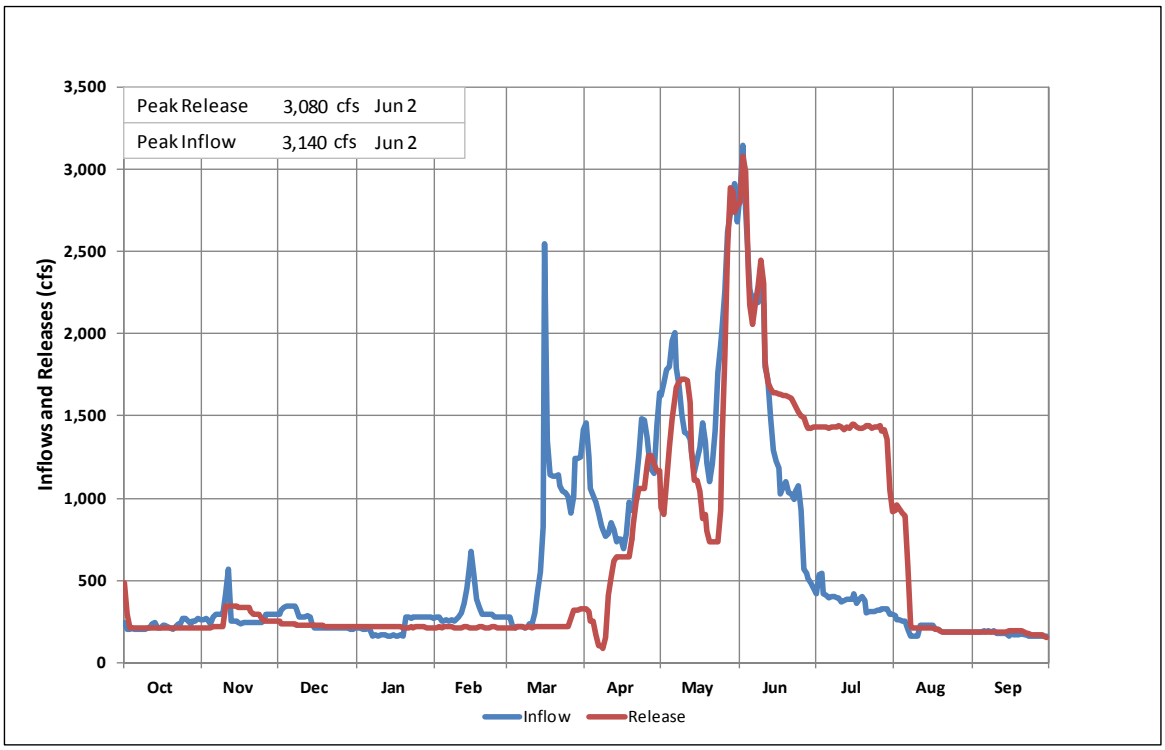
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	431,550	OCT 14-SEP 15	271,470	OCT 14-SEP 15
DAILY PEAK (CFS)	3,140	JUN 02, 2015	3,398	JUN 02, 2015
DAILY MINIMUM (CFS)	159	SEP 30, 2015	73	SEP 30, 2015

MONTH	INFLOW		OUTFLOW*				CONTENT	
	KAF	% OF AVG	TOTAL CANAL KAF	% OF AVG	RIVER KAF	% OF AVG	KAF	% OF AVG
OCTOBER	13.9	90	5.5	150	8.4	88	16.6	69
NOVEMBER	16.7	104	1.5	100	15.8	145	16.8	62
DECEMBER	15.7	120	0.0	---	18.2	166	18.5	61
JANUARY	13.3	118	0.0	---	18.0	182	18.5	55
FEBRUARY	18.1	179	0.0	---	17.2	206	24.6	68
MARCH	48.2	342	0.0	---	21.4	217	58.4	143
APRIL	62.3	139	15.0	165	30.1	138	80.7	141
MAY	107.8	71	46.8	116	53.3	55	98.5	110
JUNE	89.5	57	64.4	113	60.2	46	76.4	84
JULY	23.0	40	83.4	114	6.3	24	13.3	28
AUGUST	12.6	53	9.2	22	13.8	106	5.8	26
SEPTEMBER	10.5	62	4.1	33	8.7	86	5.4	28
ANNUAL	431.6	81	229.9	96	271.5	75		
APRIL-JULY	282.6	69						

* Average for the 1931-2015 period.

FIGURE MTG5





Water Year 2015

TABLE MTT8-B
HYDROLOGIC DATA FOR 2015
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 (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4362.40	35,811	OCT 01, 2014
END OF YEAR	4349.08	21,587	SEP 30, 2015
ANNUAL LOW	4349.08	21,587	AUG 22, 2015
ANNUAL HIGH	4370.33	47,199	MAY 01, 2015
HISTORIC HIGH	4371.40	48,950	JUL 04, 1953

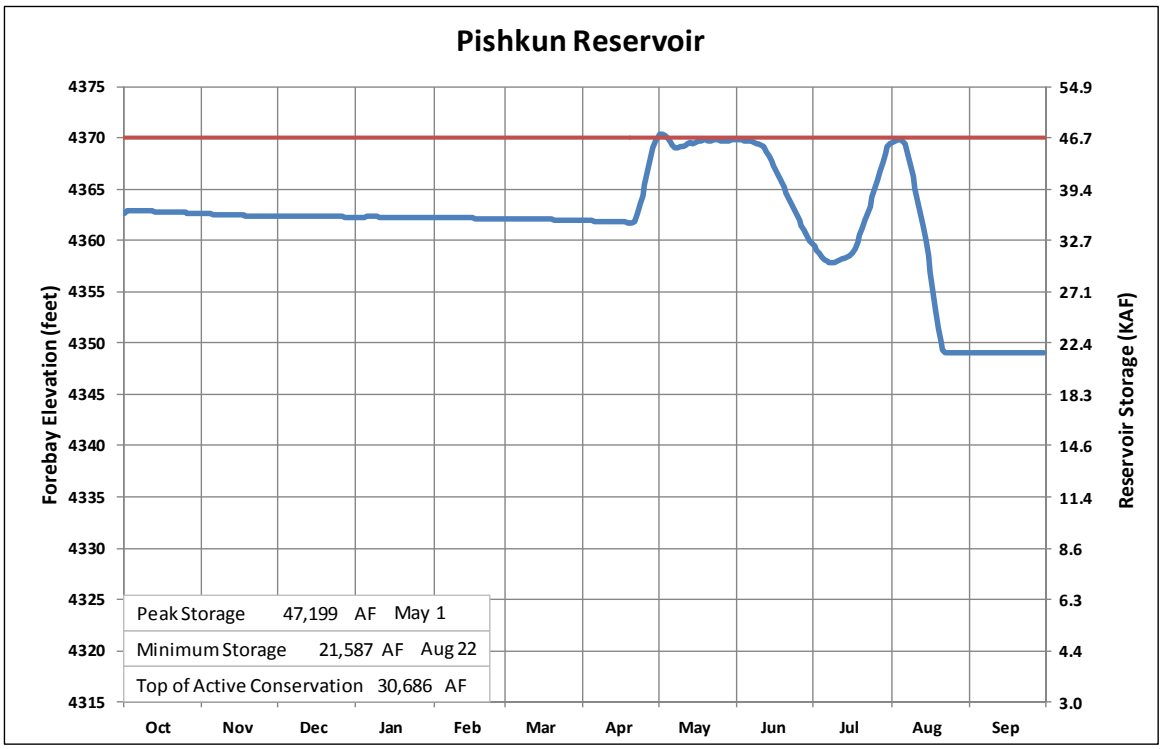
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	222,202	OCT 14-SEP 15	236,426	OCT 14-SEP 15
DAILY PEAK (CFS)	1,439	JUL 27, 2015	1,709	JUN 20, 2015
DAILY MINIMUM (CFS)	0	*	0	*

* During nonirrigation season

MONTH	INFLOW*		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	1.1	41	0.8	46	36.1	122
NOVEMBER	-0.3	---	0.0	---	35.8	116
DECEMBER	-0.1	---	0.0	---	35.7	116
JANUARY	-0.1	---	0.0	---	35.5	116
FEBRUARY	-0.1	---	0.0	---	35.4	116
MARCH	-0.2	---	0.0	---	35.2	110
APRIL	12.1	185	1.6	179	46.8	122
MAY	49.8	135	50.2	163	46.4	101
JUNE	63.8	109	77.8	126	32.3	79
JULY	82.7	117	69.3	92	45.8	126
AUGUST	12.6	30	36.7	84	21.6	62
SEPTEMBER	0.0	---	0.0	---	21.6	74
ANNUAL	222.2	96	236.4	103		
APRIL-JULY	209.5	121				

* Average for the 1947-2015 period.

FIGURE MTG6


Pishkun Reservoir
Forebay Elevation (feet)
Reservoir Storage (KAF)
4375
4370
4365
4360
4355
4350
4345
4340
4335
4330
4325
4320
4315
54.9
46.7
39.4
32.7
27.1
22.4
18.3
14.6
11.4
8.6
6.3
4.4
3.0
Peak Storage 47,199 AF May 1
Minimum Storage 21,587 AF Aug 22
Top of Active Conservation 30,686 AF
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

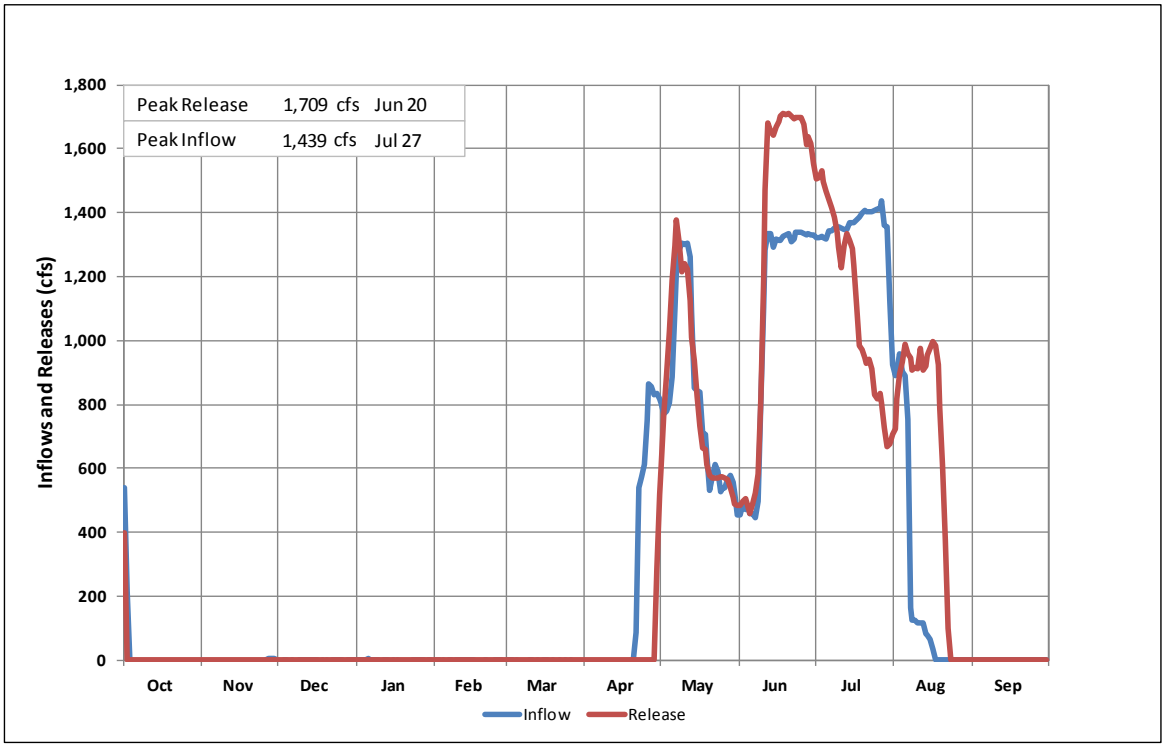

Inflows and Releases (cfs)
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Peak Release 1,709 cfs Jun 20
Peak Inflow 1,439 cfs Jul 27
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Inflow
Release

TABLE MTT8-C
HYDROLOGIC DATA FOR 2015
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 (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4136.63	24,322	OCT 01, 2014
END OF YEAR	4131.16	17,529	SEP 30, 2015
ANNUAL LOW	4129.21	15,458	SEP 03, 2015
ANNUAL HIGH	4141.89	31,687	JUN 02, 2015
HISTORIC HIGH	4144.00	35,300	JUN 22, 1975

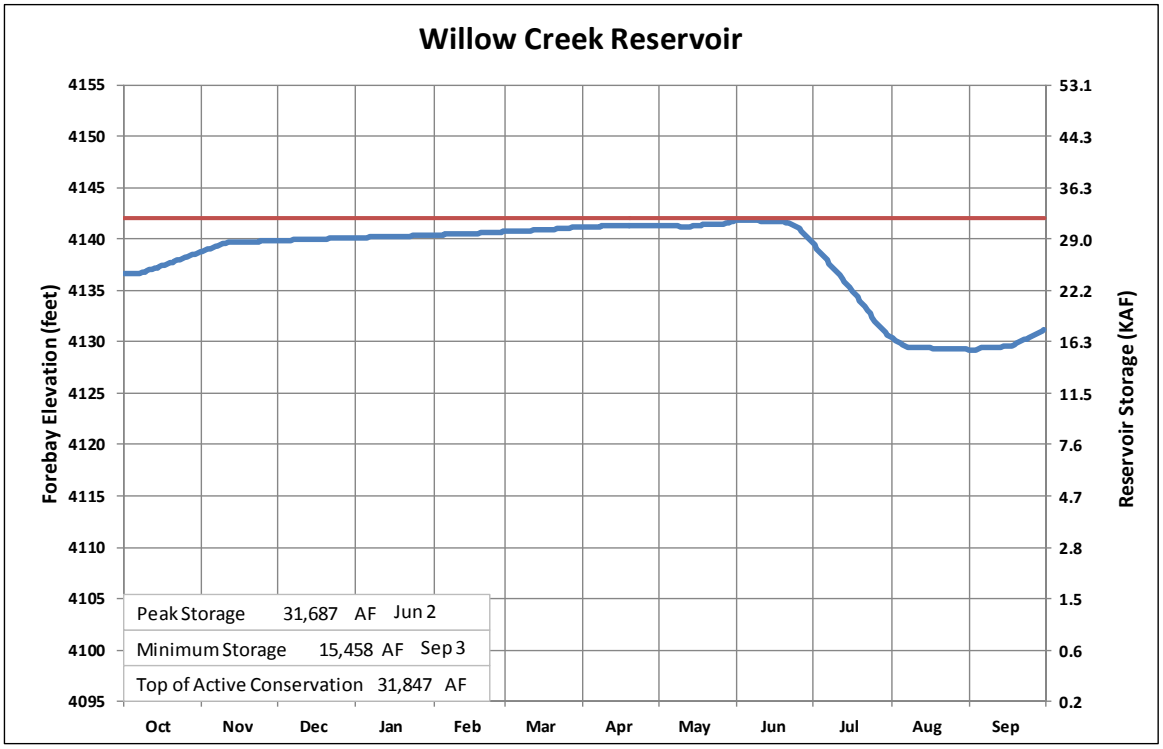
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	9,032	OCT 14-SEP 15	15,825	OCT 14-SEP 15
DAILY PEAK (CFS)	70	SEP 24, 2015	199	JUN 28, 2015
DAILY MINIMUM (CFS)	0	*	0	*

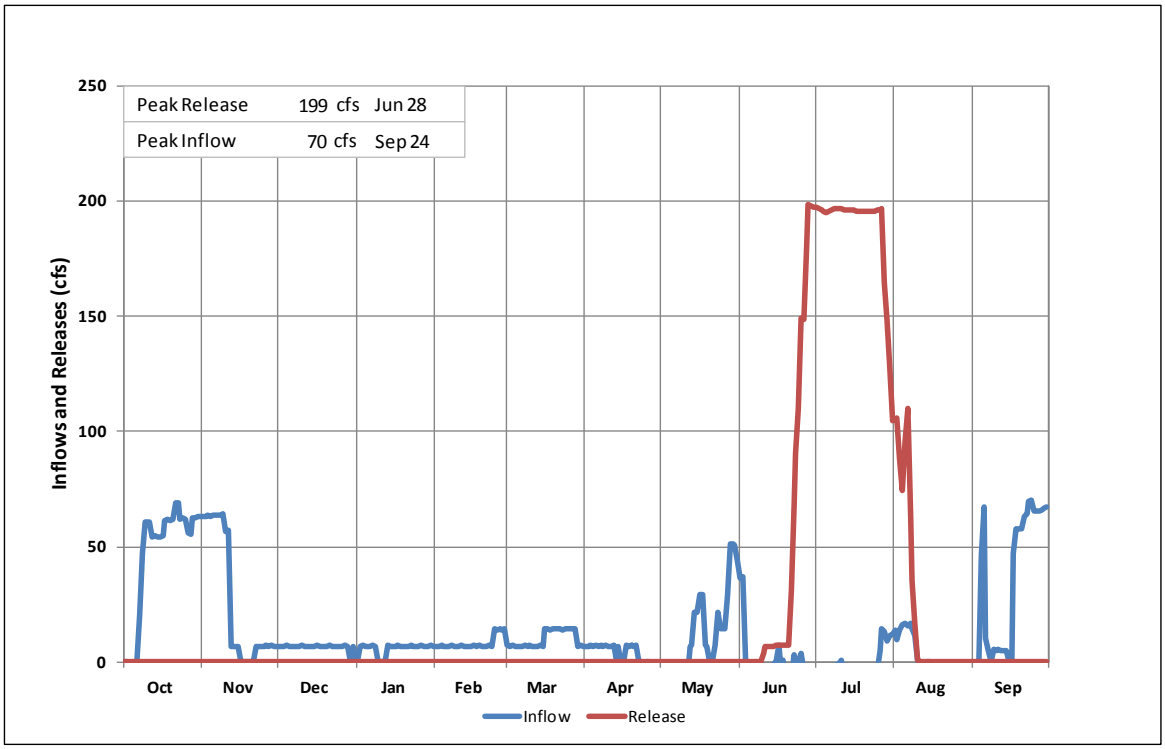
* During nonirrigation season

MONTH	INFLOW*		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	2.9	326	0.0	---	27.2	132
NOVEMBER	1.5	182	0.0	---	28.7	132
DECEMBER	0.4	93	0.0	---	29.1	129
JANUARY	0.3	108	0.0	---	29.5	129
FEBRUARY	0.5	109	0.0	---	30.0	129
MARCH	0.6	75	0.0	---	30.6	128
APRIL	0.2	10	0.0	---	30.8	120
MAY	0.7	19	0.0	---	31.5	111
JUNE	---	---	2.9	94	28.5	100
JULY	---	---	11.6	217	16.8	72
AUGUST	0.1	---	1.4	38	15.5	77
SEPTEMBER	2.0	476	0.0	---	17.5	88
ANNUAL	9.0	64	15.8	114		
APRIL-JULY	0.6	6				

* Average for the 1952-2015 period.

FIGURE MTG7


Willow Creek Reservoir
Forebay Elevation (feet)
Reservoir Storage (KAF)
4155
4150
4145
4140
4135
4130
4125
4120
4115
4110
4105
4100
4095
53.1
44.3
36.3
29.0
22.2
16.3
11.5
7.6
4.7
2.8
1.5
0.6
0.2
Peak Storage 31,687 AF Jun 2
Minimum Storage 15,458 AF Sep 3
Top of Active Conservation 31,847 AF
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


Inflows and Releases (cfs)
250
200
150
100
50
0
Peak Release 199 cfs Jun 28
Peak Inflow 70 cfs Sep 24
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Inflow
Release

Lake Elwell (Tiber Dam)

Tiber Dam P-S MBP 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 1950's 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 earth-fill cofferdam. To accommodate these changed conditions, Lake Elwell's 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, Lake Elwell is operated primarily for flood control and for increased fishery and recreation benefits. However, Lake Elwell provides irrigation water to several individual operators by water service contracts and provides about 1,500 AF 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 Lake Elwell 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 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 AF and a surface area of 18,275 acres at a reservoir elevation of 2993.00 feet. Since its closure in 1957, Lake Elwell has accumulated a sediment volume of 42,179 AF below an elevation of 2993.00 feet. 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 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. The powerplant was completed and brought on-line in June 2004.

Inflow during August 2014 totaled 23,055 AF 177 percent of average and September 2014 inflows totaled 15,576 AF, 129 percent of average. In an effort to conserve storage in Lake Elwell, releases from Lake Elwell to the Marias River were reduced to 700 cfs, approximate powerplant capacity, on September 19, 2014. They were reduced once more to the winter release rate of 600 cfs on October 2, 2014. By the end of WY 2014, normal operations of Lake Elwell drafted storage to 830,583 AF at an elevation of 2987.50 feet. This was 106 percent of average.

October 2014 was warm with average precipitation. This was followed by above average precipitation and cooler temperatures during November 2014 and above average precipitation and temperatures in December 2014. The cumulative valley precipitation during October 2014 through December 2014 was 160 percent of average while the mountain cumulative precipitation was 118 percent of average. Inflow during this period totaled 77,304 AF, 136 percent of average. Releases were maintained at 600 cfs during October 2014 through December 2014. By the end of December 2014, Lake Elwell storage drafted to 800,403 AF, 109 percent of average.

On January 1, 2015, the NRCS reported the mountain snowpack in the Marias River Basin above Lake Elwell at 106 percent of average. The January 1, 2015 water supply forecast, based on mountain snowpack, indicated the April-July 2015 runoff into Lake Elwell would be 392,000 AF, which was 105 percent of average.

During January 2015, valley precipitation continued to remain above average at 245 percent of average, while mountain precipitation was only 76 percent of average. The low storage content for the year occurred on January 23, 2015 at 790,616 AF an elevation of 2984.92 feet. On February 1, 2015, the NRCS reported the mountain snowpack in the Marias River Basin above Lake Elwell was 93 percent of average. The February 1, 2015 water supply forecast indicated the April-July 2015 runoff into Lake Elwell would be about 346,000 AF at 93 percent of average.

Valley precipitation was 81 percent of average and mountain precipitation was 89 percent of average in February 2015. On March 1, 2015, the NRCS reported the mountain snowpack in the Marias River Basin above Lake Elwell was below average at 87 percent of average. The March 1, 2015 water supply forecast indicated the April-July 2015 runoff into Lake Elwell would be 319,000 AF, which was 86 percent of average.

Conditions were warm and very dry in March 2015. Snowpack for the season peaked on March 9, 2015 at only 73 percent of the average peak. Warm weather during the second half of March 2015 melted off some of the low elevation snow and inflows peaked at approximately 1,685 cfs on March 31, 2015. With the dry conditions, releases were maintained at 600 cfs.

On April 1, 2015 the NRCS reported the mountain snowpack in the Marias River Basin above Lake Elwell was only 66 percent of average. The water supply forecast prepared on April 1, 2015 indicated the April-July 2015 runoff into Lake Elwell was expected to be 63 percent of average, totaling 234,000 AF. On April 8, 2015, forecasts and planned operations of Tiber Dam were presented at the Marias River Water Management Committee's annual meeting.

April 2015 precipitation was well below average in the valley and mountains. On May 1, 2015 the NRCS indicated the snow water content of the snowpack above Lake Elwell had decreased to 53 percent of average. The May 1, 2015 water supply forecast indicated May 2015 through July 2015 runoff into Lake Elwell would be 139,000 AF, which was 44 percent of average. Based on the May 1, 2015 water supply outlook, the release from Tiber Dam was kept at 600 cfs to conserve storage. Lake Elwell was forecasted to fall short of filling to the normal full pool of 2993.0 feet by 0.9 feet.

Precipitation in May 2015 was 93 percent of average in the valley and 78 percent of average in the mountains. Inflows from snowmelt runoff reached a peak of 2,285 cfs on June 5, 2015 at only 38 percent of the average peak. Monthly precipitation percentages for June 2015 were much lower at 41 percent of average for the valley and 3 percent of average for the mountains. However, based on inflows and storage, the releases from Tiber Dam were increased on June 3, 2015 to 920 cfs as Lake Elwell approached normal full pool.

Lake Elwell reached normal full pool, 2993.0 feet, on June 13, 2015 and peaked in storage on June 16, 2015 at an elevation of 2993.01 feet, 925,830 AF. On June 15, 2015, the releases were decreased to powerplant capacity, approximately 720 cfs, to conserve storage.

During July 2015 valley precipitation was 106 percent of average and mountain precipitation was 51 percent of average. Inflow into Lake Elwell during July 2015 was only 17 percent of average. Conditions stayed dry during August 2015. Both the valley and mountain precipitation in the Marias River Basin above Lake Elwell was below normal. Valley precipitation was recorded at 59 percent of average while mountain precipitation was 35 percent of average. By the end of WY 2015, the annual valley precipitation was 94 percent of average and mountain precipitation was 77 percent of average. Precipitation was good early in WY 2015 followed by a very dry summer.

The April-July 2015 runoff into Lake Elwell was 52 percent of average, totaling only 193,300 AF and was 287,300 AF less than the April 2014 through July 2014 inflow. This is the seventh lowest April through July inflow on record. The total annual inflow to Lake Elwell for WY 2015 was 81 percent of average, totaling 436,300 AF. This was 216,400 AF less than the total annual inflow experienced in WY 2014.

Inflow during August 2015 totaled 2,100 AF which was 16 percent of average and September 2015 totaled 7,500 AF, which was 65 percent of average. In an effort to conserve storage in Lake Elwell, releases from Lake Elwell to the Marias River were reduced to 600 cfs

on August 4, 2015. They were reduced once more to the winter release rate of 500 cfs on September 2, 2015.

By the end of WY 2015, storage in Lake Elwell was at 819,442 AF or an elevation of 2986.80 feet. This was 104 percent of normal and only 11,141 AF or 0. 70 feet lower than reported on September 30, 2014.

The Corps determined that during 2015, Lake Elwell did not prevent any local flood damages but prevented $660,300 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 $96,355,200.

Important Events – 2015

October 2, 2014: To conserve storage and meet forecasted spring storage targets, releases to the Marias River were decreased to 600 cfs as the fall/winter release rate.

December 2-3, 2014: Powerplant was unavailable due to maintenance and flows were released through the river outlet works.

January 1, 2015: NRCS reported snowpack conditions in the watershed above Lake Elwell were about 106 percent of average. The January 2015 water supply forecast indicates the April-July 2015 runoff into Lake Elwell would be 392,000 AF which is 105 percent of average.

January 23, 2015: Storage in Lake Elwell slowly drafted to a low content for the year of 790,616 AF at an elevation of 2984.92 feet.

February 1, 2015: NRCS reported snowpack conditions in the watershed above Lake Elwell were about 91 percent of average. The February 2015 water supply forecast indicates the April /July 2015 runoff into Lake Elwell would be 346,000 AF which was 93 percent of average.

February 2-5, 2015: Powerplant was unavailable due to maintenance by WAPA and flows were released through the river outlet works.

March 1, 2015: NRCS reported snowpack conditions in the Marias River Basin upstream of Lake Elwell were about 87 percent of average. The March 2015 water supply forecast indicates the April-July 2015 runoff into Lake Elwell would be 319,000 AF which is 86 percent of average.

April 1, 2015: NRCS reported snowpack conditions in the watershed above Lake Elwell were 66 percent of average. Water supply forecast indicated the April-July 2015 runoff into Lake Elwell would be 234,000 AF or 63 percent of average.

April 15, 2015: Powerplant was unavailable due to maintenance by WAPA and flows were released through the river outlet works.

May 1, 2015: NRCS reported snowpack conditions in the watershed above Lake Elwell were 53 percent of average. The May 1, 2015 water supply forecast indicates the May-July 2015 runoff into Lake Elwell would be 139,000 AF which is 44 percent of average.

June 1, 2015: NRCS reported snowpack conditions in the watershed above Lake Elwell were 13 percent of average. The June 1, 2015 water supply forecast indicates the June-July 2015 runoff into Lake Elwell would be 70,300 AF which is 37 percent of average.

June 3, 2015: To control the rate of fill, releases were increased through the powerplant and imitated through the spillway for a total release to the Marias River of 920 cfs.

June 5, 2015: Inflow into Lake Elwell reached peak for the year at 2,285 cfs.

June 15, 2015: To conserve storage, releases to the Marias River were decreased to 720 cfs.

June 16, 2015: Storage in Lake Elwell reached peak content for the year of 925,830 AF at an elevation of 2993.01 feet.

August 4, 2015: To conserve storage, releases to the Marias River were decreased to 600 cfs.

September 2, 2015: To conserve storage, releases to the Marias River were reduced to 500 cfs.

Additional hydrologic and statistical information pertaining to the operation of Lake Elwell during 2015 can be found in Table MTT9 and Figure MTG8.

TABLE MTT9
HYDROLOGIC DATA FOR 2015
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

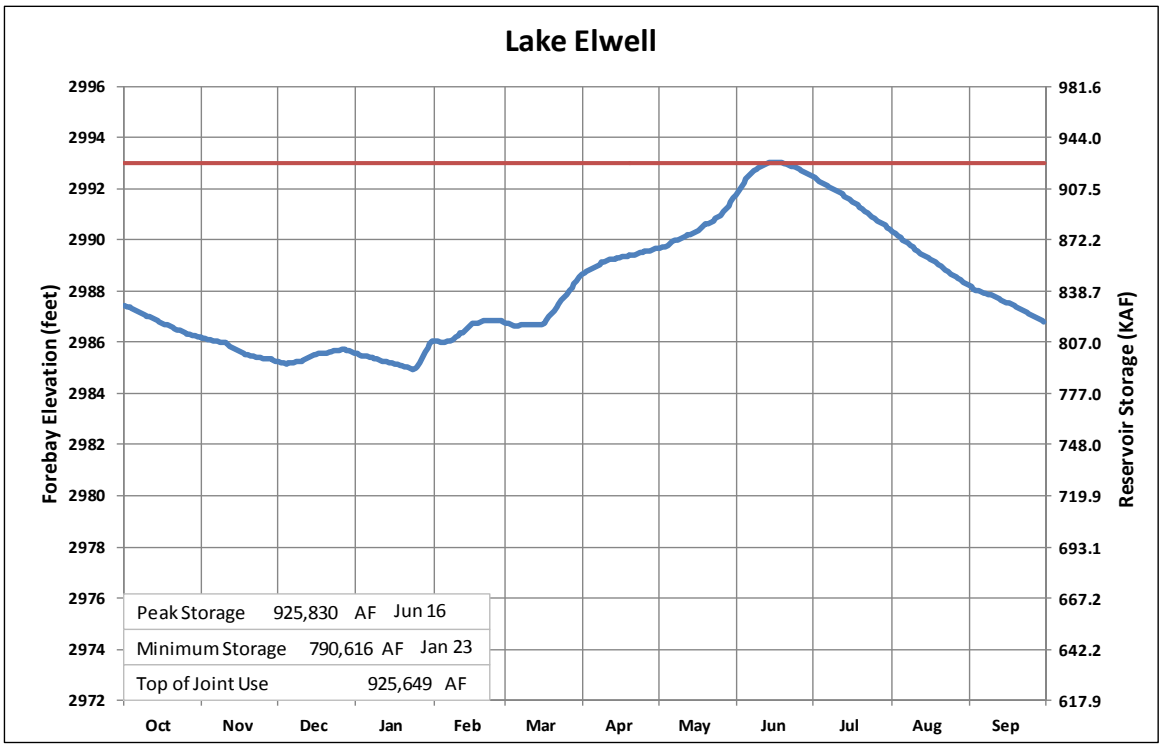
STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2987.50	830,583	OCT 01, 2014
END OF YEAR	2986.80	819,442	SEP 30, 2015
ANNUAL LOW	2984.92	790,616	JAN 23, 2015
ANNUAL HIGH	2993.01	925,830	JUN 16, 2015
HISTORIC HIGH	3011.42	1,303,858	JUL 19, 2011

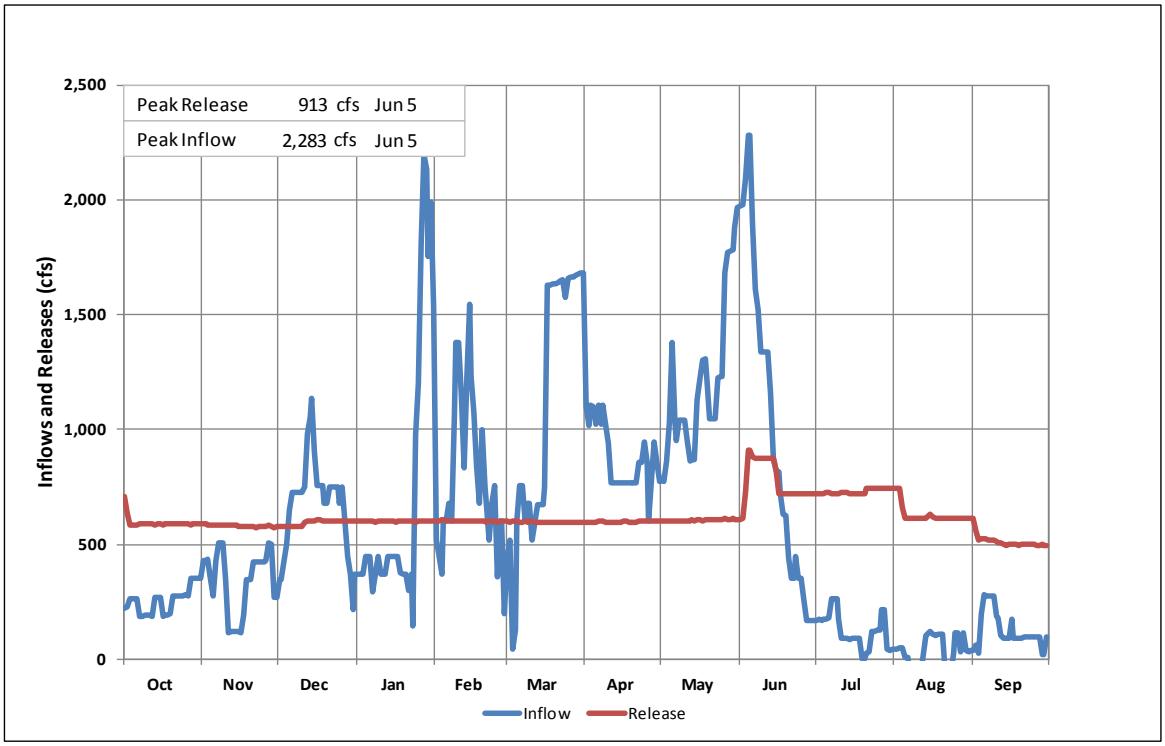
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	436,295	OCT 14-SEP15	447,436	OCT 14-SEP 15
DAILY PEAK (CFS)	2,283	JUN 05, 2015	913	JUN 04, 2015
DAILY MINIMUM (CFS)	-75	AUG 08, 2015	493	SEP 30, 2015
PEAK SPILL (CFS)			167	JUN 04, 2015
TOTAL SPILL (AF)			3,937	06/03-15/2015

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	15.7	92	36.5	81	809.8	107
NOVEMBER	20.3	91	34.5	96	795.6	106
DECEMBER	41.3	239	36.4	128	800.4	109
JANUARY	44.5	283	36.8	138	808.1	113
FEBRUARY	44.4	208	33.3	51	819.1	116
MARCH	67.1	163	36.7	105	856.4	119
APRIL	52.5	97	35.7	81	866.4	119
MAY	74.0	58	37.2	57	903.2	112
JUNE	59.2	40	46.2	50	916.2	104
JULY	7.6	17	44.9	61	878.9	102
AUGUST	2.1	15	38.8	66	842.3	103
SEPTEMBER	7.5	59	30.4	59	819.4	104
ANNUAL	436.3	82	447.4	77		
APRIL-JULY	193.4	52				

* Average for the 1957-2015 period.

FIGURE MTG8


Lake Elwell
Forebay Elevation (feet)
Reservoir Storage (KAF)
2996
2994
2992
2990
2988
2986
2984
2982
2980
2978
2976
2974
2972
981.6
944.0
907.5
872.2
838.7
807.0
777.0
748.0
719.9
693.1
667.2
642.2
617.9
Peak Storage 925,830 AF Jun 16
Minimum Storage 790,616 AF Jan 23
Top of Joint Use 925,649 AF
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


Inflows and Releases (cfs)
2,500
2,000
1,500
1,000
500
0
Peak Release 913 cfs Jun 5
Peak Inflow 2,283 cfs Jun 5
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Inflow
Release

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 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 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 AF at an elevation of 4788.0 feet. 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 an elevation of 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 area-capacity tables. The data was used to calculate reservoir capacity since dam closure in 1919. The 2002 survey determined that Lake Sherburne has a storage capacity of 66,147 AF and a surface area of 1,719 acres at a reservoir elevation of 4788.00 feet. Since Lake Sherburne closure in 1919, the measured total volume change at a reservoir elevation of 4788.00 feet was estimated to be 343 AF between the 1948 and 2002 surveys and 1,707 AF between the 1983 and 2002 surveys. The volume differences between the surveys are likely 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.

Hydrologic conditions in the St. Mary River Basin were above average for WY 2015. The cumulative precipitation through the end of September 2015 for the valley was 113 percent of average and the mountain area was 101 percent of average. Inflows during August 2015 were 108 percent of average and September 2015 were 76 percent of average. Inflow for WY 2015 totaled 161,900 AF, 114 percent of average. Lake Sherburne storage on September 30, 2015, was 31,250 AF, an elevation of 4763.80 feet, which is 203 percent of average.

WY 2015 began with above average precipitation from October 2014 and November 2014 and below average in December 2014 in both valley and mountain areas. Cumulative

valley precipitation from October 2014 to the end of December 2014 was 138 percent of average. During the same period, cumulative mountain precipitation was 111 percent of average. As a result, inflows during October 2014 through December 2014 were 126 percent of average. Storage in Lake Sherburne at the end of December 2014 was 53,238 AF at an elevation of 4780.14 feet, 195 percent of average.

The mountain precipitation early in WY 2015 was in the form of rain instead of snow. Even though precipitation was above average for October 2014 through December 2014, on January 1, 2015, the NRCS reported mountain snowpack in the St. Mary Basin was only 78 percent of normal. Precipitation in the mountains was below average during January 2015 and as a result, the February 1, 2015 snowpack for the St. Mary Basin dropped to 73 percent of average. Precipitation improved during February 2015; however the snowpack for the St. Mary Basin had decreased to 70 percent of average by March 1, 2015. March 2015 precipitation in the mountains was 143 percent of average and 154 percent of average in the valley. Over seven inches of precipitation fell in March 2015. Due to warm weather, the snowpack continued to decrease to only 63 percent of average by April 1, 2015. Total inflow during January 2015 through March 2015 was approximately 22,300 AF, 242 percent of average.

With the carryover storage and above average inflows, releases from Lake Sherburne were initiated on February 18, 2015 to control the rate of fill. This start date for releases occurred a month earlier than normal. Releases were increased to approximately 170 cfs by March 1, 2015. With all the precipitation in March 2015, releases were increased briefly to 400 cfs and were reduced to 200 cfs by April 1, 2015.

The snow pack peaked on April 16, 2015 at only 68 percent of the average peak. The water supply forecast prepared on April 1, 2015, indicated that the April-July 2015 runoff into Lake Sherburne was expected to be 78,000 AF, 78 percent of normal.

Due to the good carryover conditions in Fresno and Nelson Reservoirs, spring startup of the St. Mary Canal was not necessary until March 31, 2015. Diversions were started and held at 175 cfs through the month April 2015.

Storage during the runoff season reached a low on May 23, 2015 at 51,828 AF, 187 percent of average, when inflows from snowmelt runoff started to exceed the 400 cfs release. Sherburne releases were varied to control the runoff from the basin and plans on filling the reservoir to normal full pool by end of June 2015. Diversions to the St. Mary Canal were gradually increased to 500 cfs and increased again to 600 cfs in May 2015.

Precipitation for April, May and June 2015 was below average. Inflow was also below average for all three months. The snowpack was essentially melted out by June 14, 2015. Lake Sherburne storage peaked on June 14, 2015 at 63,622 AF, at an elevation of 4786.52 feet, 1.48 feet below the top of normal full capacity. The actual April through July 2015 runoff was 65 percent of average, totaling 65,900 AF. This is the second lowest runoff in the past 30 years.

Precipitation stayed well below average during the months of July, August and September 2015. The cumulative precipitation through the end of September 2015 was 83 percent of average for the valley areas and 89 percent of average for mountain areas. Inflows during August 2015 were 69 percent of average, and September 2015 inflows were 75 percent of average. Inflow for WY 2015 totaled 120,700 AF, 86 percent of average. This was approximately 41,200 AF less than the inflow experienced during WY 2014. On September 30, 2015, the storage content in Lake Sherburne was 16,195 AF at an elevation of 4749.28 feet, 103 percent of average.

According to preliminary data, diversions from the St. Mary River to the Milk River totaled 145,079 AF, 96 percent of the long-term average. The long-term average annual diversion is 150,500 AF. The largest diversion previously recorded was 277,500 AF during 1989. Releases from Lake Sherburne were discontinued for WY 2015 on September 2, 2015, while canal diversions from the St. Mary River to the Milk River were discontinued on September 9, 2015. The canal diversions stayed on longer than the release from Lake Sherburne to try to balance the water delivery deficits on the St. Mary and Milk Rivers.

During the 2015 irrigation season three conference calls were conducted 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. One was conducted in July 2015; the second one was conducted in August 2015, and the third one in September 2015. Due to unusually dry conditions, a deficit was run on the Milk and St. Mary Rivers beyond the normal periods for running deficits.

During 2015, Lake Sherburne did not contribute to the reduction of local flood damages. Since 1950 Lake Sherburne has prevented $10,412,000 in flood damages.

Additional hydrologic and statistical information pertaining to the operation of Sherburne Reservoir during 2015 can be found in Table MTT10-A and Figure MTG9.

Fresno Reservoir is located above all project lands on the Milk River near Havre, Montana. A sediment survey done during 2010 and finalized during 2013 determined the normal full pool capacity was 91,746 AF, a capacity reduction of 1,134 AF from the previous capacity. The new revised elevation-area-capacity data was used beginning in WY 2014. The top 33,841 AF 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.

The cumulative valley precipitation through the end of September 2014 was 120 percent of average. Total inflow into Fresno Reservoir for WY 2014 was 261,400 AF, 102 percent of average. Releases were reduced to 110 cfs on September 21, 2014, allowing storage to be slowly drafted to 63,495 AF at an elevation of 2567.94 feet on September 30, 2014, 161 percent of average and 69 percent of normal full capacity. Winter releases were set on November 6, 2014 at approximately 75 cfs to get close to the desired spring flood control target level at an elevation of 2567.0 feet.

The valley precipitation for October, November and December 2014 was below average. The accumulated year to date precipitation from October 2014 through December 2014 was 78 percent of average. Cumulative reservoir inflow was above average from October 2014 through December 2014. Due to above average inflow and good carryover, the end of December 2014 storage was 67,020 AF at an elevation of 2569.69 feet, 176 percent of average.

By January 1, 2015, the NRCS reported the snowpack in the Milk River Basin was 147 percent of average. The NRCS reported snowpack decreased to 118 percent of average by March 1, 2015. In the Milk River Basin, the spring runoff season generally occurs from March 2015 through June 2015. Therefore, the peak snowpack and most reliable water supply runoff forecast for the Milk River Basin is generally considered to be around the beginning of March. The NRCS reported a March 1, 2015 forecast for natural runoff above Fresno Reservoir for March 2015 through September 2015 of 78,000 AF, 96 percent of average. This forecast came from Alberta, Canada. Based on this forecast and expected St. Mary Canal operations, storage in Fresno Reservoir was expected to fill to the top of the conservation pool at an elevation of 2575 feet by the end of April 2015.

Releases from Fresno Reservoir were increased to 200 cfs towards the end of February 2015 to control the rate of fill. Towards the end of March 2015 releases were reduced to the minimum gate opening to a release of approximately 50 cfs to allow Fresno Reservoir to fill to normal full pool. At the end of March 2015, the storage content in Fresno Reservoir was 89,398 AF at an elevation of 2574.54 feet. This was 179 percent of average and only 0.46 feet below the top of the joint-use pool.

On April 9, 2015, Fresno Reservoir filled to the normal full pool of 2575.0 feet, 91,746 AF. Fresno Reservoir filled from natural spring runoff and high carryover. Water from the St. Mary Basin through the St. Mary Canal did not reach Fresno Reservoir until approximately April 11, 2015.

During April 2015 releases increased to greater than 300 cfs as the releases increased over the spillway and as storage continued to increase. Precipitation was only 62 percent of average in April 2015. However, by the end of April 2015, the storage content in Fresno Reservoir was 94,360 AF at an elevation of 2575.50 feet. This was 0.50 feet into the surcharge pool.

It was not until May 7, 2015 that irrigation demands were greater than the releases out of Fresno Reservoir. With May 2015 precipitation at only 73 percent of average and below average diversions throught the St. Mary Canal inflow into Fresno Reservoir was below average. On March 24, 2015, the Milk River Joint Board of Control (MRJBC) set the initial annual allotments at 2.0 AF/acre.

Although precipitation varied, inflows remained below average for the remainder of WY 2015. In response to the declining storage and dry conditions and to conserve storage for the 2016 irrigation season, the Milk River Joint Board of Control decided to stop releases for irrigation on August 27, 2015 which is approximately 15 days earlier than normal. WY 2015 lacked any of the significant precipitation events that usually help the system regain storage.

The actual March 2015 through September 2015 inflow for Fresno Reservoir, excluding St. Mary Canal water was approximately 48,951 AF, 60 percent of average, based on the United States Geological Survey (USGS) computation for natural flow at the Milk River at Eastern Crossing gauging station.

The cumulative valley precipitation through the end of September 2015 was 86 percent of average. Total inflow into Fresno Reservoir for WY 2015 was 193,100 AF, 76 percent of average. Diversions from the St. Mary River Basin to the Milk River Basin accounted for about 68 percent of the inflow to Fresno Reservoir during 2015. After irrigation on the Fort Belknap Indian Irrigation Project was done for 2015, releases from Fresno Reservoir were reduced to the winter release rate of 45 cfs on September 21, 2015. Storage in Fresno Reservoir slowly drafted for the remainder of September 2015 and by the end of the month, storage was at 59,816 AF at an elevation of 2567.54 feet, 145 percent of average and 65 percent of normal full capacity.

The Corps determined that during 2015, Fresno Reservoir did not prevent local or Missouri Main Stem flood damage. Since 1950 Fresno Dam and Reservoir has reduced flood damages by a total of $15,500,900.

Additional hydrologic and statistical information pertaining to the operation of Fresno Reservoir during 2015 can be found in Table MTT10-B and Figure MTG10.

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 survey was performed and then

finalized during 2000-2001. Since Nelson Reservoir operation began in 1916, the measured total was 446 AF. The revised elevation area capacity data was implemented at the beginning of WY 2002. Nelson Reservoir now has a total capacity of 78,950 AF and an active capacity of 60,810 AF.

After rain storms on August 23 and August 25, 2015, releases were discontinued out of the north and the south canals. Inflows to the reservoir continued until September 12, 2015. Total net inflow to Nelson Reservoir during WY 2015 was 51,900 AF. Storage on September 30, 2015 was 71,491 AF at an elevation of 2219.82 feet, 134 percent of average and 91 percent of normal full capacity. Once the diversions ceased, storage slowly decreased due to seepage and other reservoir losses during October 2014 through March 2015.

Diversions through the Dodson South Canal reached Nelson Reservoir on March 16, 2015. Releases for irrigation demands started on May 5, 2015. Since much of the demand from Malta Irrigation District is for early irrigation, releases are generally discontinued in mid to late June for harvest. Releases were discontinued to the Nelson South Canal from June 24, 2015 through July 5, 2015. However, releases through Nelson North Canal for Glasgow Irrigation District were not discontinued during 2015. Therefore, Nelson Reservoir did not increase as much as normal during late June 2015.

From March 16, 2015, storage steadily increased until mid-May when Nelson Reservoir reached near full pool. Storage in Nelson Reservoir peaked once at 78,173 AF at an elevation of 2221.42 feet on May 10, 2015, which was approximately 0.18 feet below normal full pool. Typically, the district prefers to keep Nelson Reservoir about a foot below full pool to reduce wave action on the dikes. The low storage content for WY 2015 was 54,035 AF at an elevation of 2215.22 feet on July 27, 2015.

Releases were discontinued out of the north and the south canals on August 25, 2015 as the Milk River Joint Board of Control decided to end the irrigation season early. Inflows to Nelson Reservoir continued until October 4, 2015. Total net inflow to Nelson Reservoir during WY 2015 was 56,100 AF. Storage on September 30, 2015 was 66,467 AF at an elevation of 2218.56 feet, 121 percent of average and 84 percent of normal full capacity.

Additional hydrologic and statistical information pertaining to the operation of Nelson Reservoir during 2015 can be found in Table MTT10-C and Figure MTG11.

Important Events – 2015

February 18, 2015: Releases begin from Lake Sherburne in response to high carryover storage and above average inflows.

March 1, 2015: Milk River runoff forecast indicates March-September 2015 runoff to be 96 percent of average.

March 15-17, 2015: Heavy rain and snow in the St. Mary River Basin caused Lake Sherburne inflows to increase from a daily average of approximately 30 cfs to approximately 800 cfs.

March 16, 2015: First water of the year diverted down the Dodson South Canal starts to fill Nelson Reservoir.

March 24, 2015: MRJBC sets the irrigation allotment to 2.0 AF per acre.

March 31, 2015: St. Mary Canal begins to divert water to the Milk River.

April 1, 2015: Lake Sherburne runoff forecast indicates April-July 2015 runoff to be 78 percent of average.

April 9, 2015: Fresno Reservoir fills and begins spilling water over the ungated spillway.

April 15, 2015: Releases are initiated from Nelson Reservoir to manage the level of storage.

April 15, 2015: Storage in Nelson Reservoir reached peak content for the year of 78,259 AF at an elevation of 2221.44 feet, 0.16 feet below normal full pool.

April 24, 2015: Storage in Fresno Reservoir reached peak content for the year of 94,625 AF at an elevation of 2575.55 feet, 0.55 feet above normal full pool.

May 7, 2015: Releases are increased from Nelson Reservoir for the first time for the year to meet irrigation demand.

June 3, 2015: Inflow to Lake Sherburne peaked at 1,165 cfs.

June 8, 2015: Inflow to Fresno Reservoir peaked at 795 cfs.

June 14, 2015: Storage in Lake Sherburne reached peak content for the year of 63,622 AF, at an elevation of 4786.52 feet, 1.48 feet below normal full pool.

July 9, 2015: A conference call was held with the IJC Field Representatives to discuss St. Mary and Milk River apportionments.

August 6, 2015: A conference call was held with the IJC Field Representatives to discuss St. Mary and Milk River apportionments.

August 25, 2015: Releases from Nelson Reservoir are discontinued.

September 2, 2015: Lake Sherburne releases are discontinued.

September 8, 2015: A conference call was held with the IJC Field Representatives to discuss St. Mary and Milk River apportionments.

September 9, 2015: St. Mary Canal diversions are discontinued.

September 21, 2015: Releases from Fresno Reservoir are set at approximately 45 cfs for the duration of the winter.

TABLE MTT10-A
HYDROLOGIC DATA FOR 2015
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 (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	4763.80	31,250	OCT 01, 2014
END OF YEAR	4749.28	16,195	SEP 30, 2015
ANNUAL LOW	4744.59	12,101	AUG 31, 2015
ANNUAL HIGH	4786.52	63,622	JUN 14, 2015
HISTORIC HIGH	4788.30	68,371	JUN 30, 1986

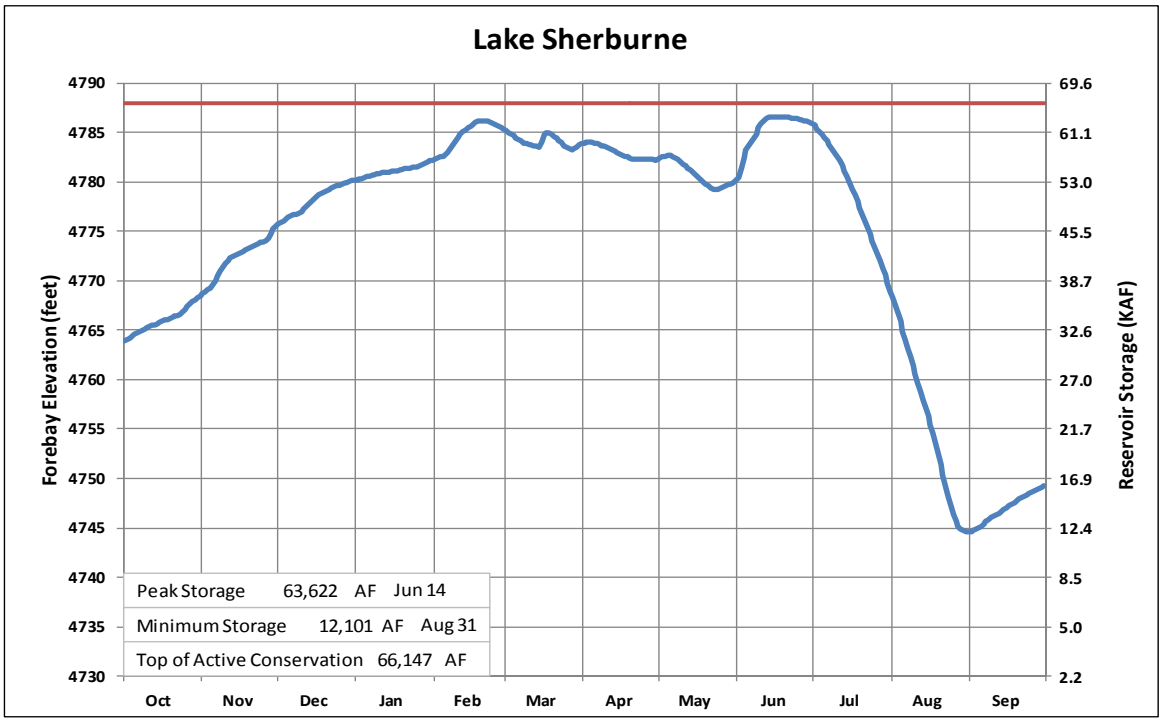
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	120,742	OCT 14-SEP 15	135,797	OCT 14-SEP 15
DAILY PEAK (CFS)	1,165	JUN 03, 2015	719	JUL 15, 2015
DAILY MINIMUM (CFS)	1	MAR 05, 2015	0	*

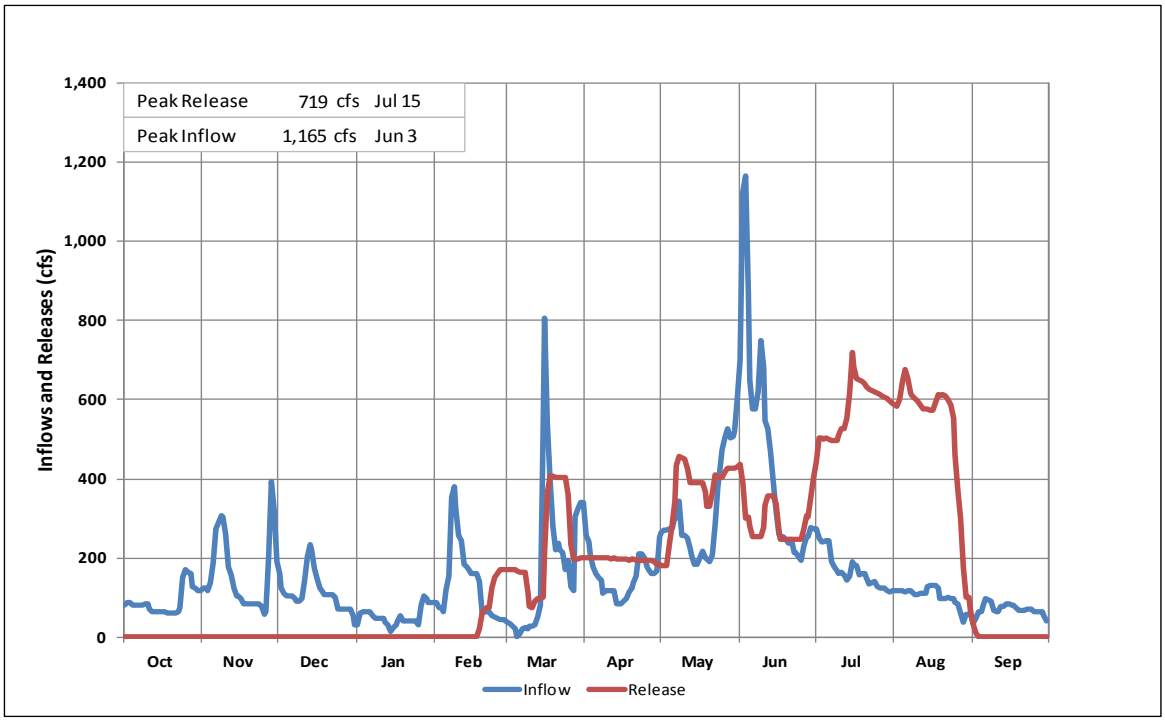
* During nonirrigation season

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	5.6	82	0.0	---	36.8	192
NOVEMBER	9.5	130	0.0	---	46.3	187
DECEMBER	6.9	210	0.0	---	53.2	195
JANUARY	3.3	121	0.0	---	56.5	188
FEBRUARY	7.6	345	2.5	2,784	61.6	191
MARCH	11.4	318	13.9	300	59.2	200
APRIL	9.2	83	11.7	78	56.6	275
MAY	19.5	62	22.9	111	53.3	154
JUNE	26.9	69	17.6	90	62.6	111
JULY	10.4	54	35.5	138	37.5	76
AUGUST	6.3	68	31.7	96	12.1	44
SEPTEMBER	4.2	71	0.1	0	16.2	103
ANNUAL	120.7	85	135.8	93		
APRIL-JULY	66.0	66				

* Average for the 1955-2015 period.

FIGURE MTG9





Water Year 2015

TABLE MTT10-B
HYDROLOGIC DATA FOR 2015
FRESNO RESERVOIR (MILK RIVER PROJECT)
NEW SEDIMENT SURVEY DATA EFFECTIVE 10/1/2013

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	2530.00	158	158
TOP OF ACTIVE CONSERVATION	2567.00	57,905	57,747
TOP OF JOINT USE	2575.00	91,746	33,841

STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2570.71	71,866	OCT 01, 2014
END OF YEAR	2567.54	59,816	SEP 30, 2015
ANNUAL LOW	2564.57	49,978	AUG 19, 2015
ANNUAL HIGH	2575.55	94,625	APR 24, 2015
HISTORIC HIGH	2579.35	154,023	APR 03, 1952

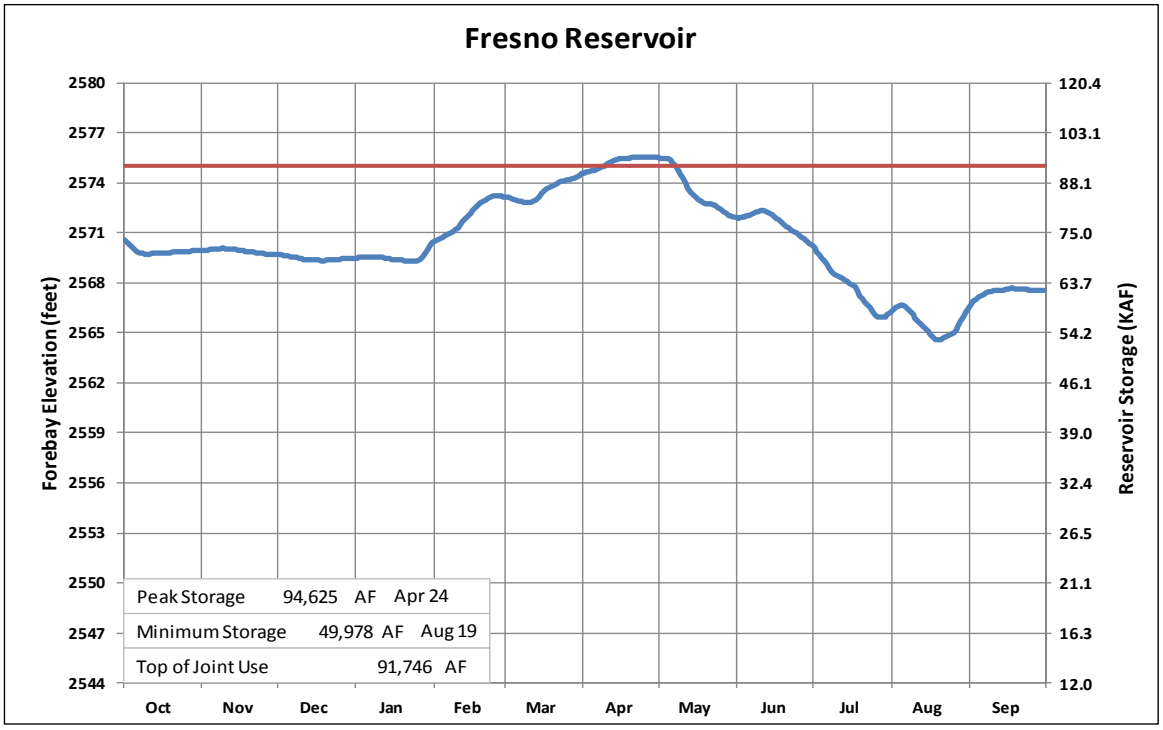
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	193,130	OCT 14-SEP 15	205,180	OCT 14-SEP 15
DAILY PEAK (CFS)	795	JUN 08, 2015	873	JUL 04, 2015
DAILY MINIMUM (CFS)	0	*	46	OCT 20, 2014

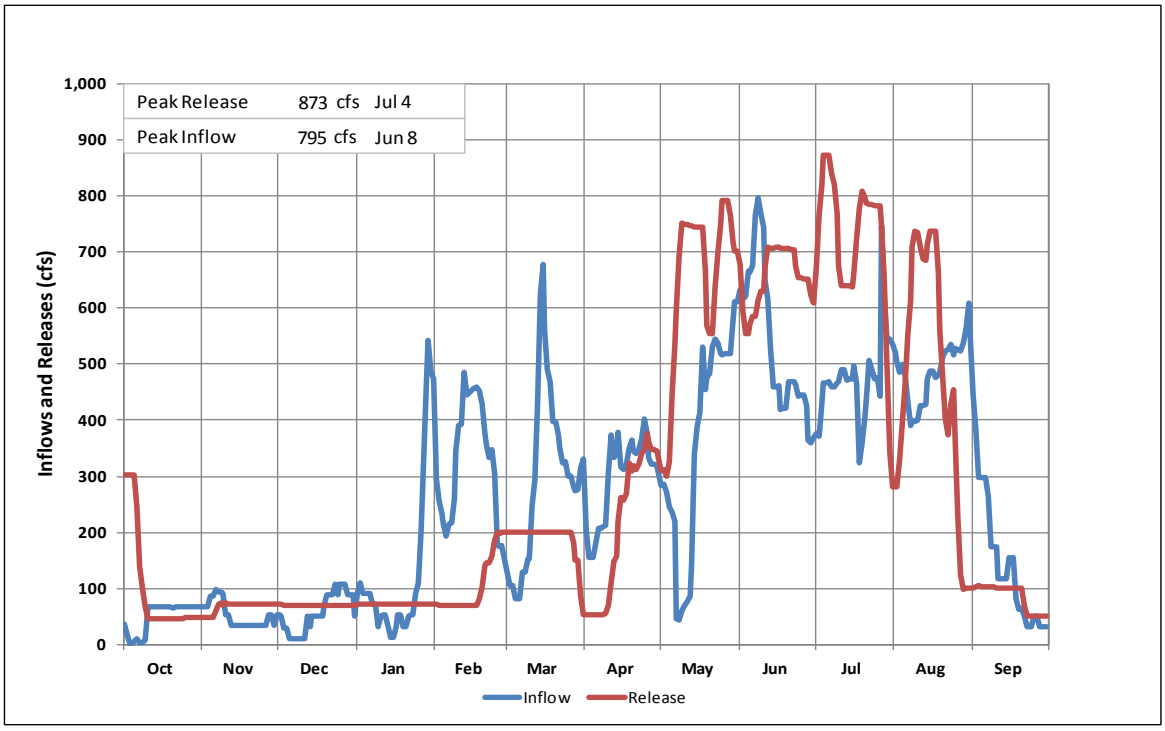
* During non-irrigation season

MONTH	INFLOW		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	3.1	40	6.2	84	68.8	172
NOVEMBER	3.1	124	4.1	127	67.8	171
DECEMBER	3.5	266	4.3	157	67.0	176
JANUARY	8.0	669	4.4	164	70.7	193
FEBRUARY	17.9	437	5.8	232	82.7	224
MARCH	18.2	73	11.6	166	89.4	179
APRIL	17.6	57	12.6	63	94.4	144
MAY	22.1	50	39.5	82	77.0	122
JUNE	31.9	60	38.9	78	70.0	104
JULY	29.1	90	43.9	80	55.2	113
AUGUST	30.0	98	28.9	64	56.3	144
SEPTEMBER	8.6	37	5.0	23	89.8	145
ANNUAL	193.1	75	205.2	77		
APRIL-JULY	100.7	63				

* Average for the 1949-2015 period.

FIGURE MTG10





Water Year 2015

TABLE MTT10-C
HYDROLOGIC DATA FOR 2015
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 (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2219.82	71,491	OCT 01, 2014
END OF YEAR	2218.56	66,467	SEP 30, 2015
ANNUAL LOW	2215.22	54,035	JUL 27, 2015
ANNUAL HIGH	2221.44	78,259	APR 15, 2015
HISTORIC HIGH	2221.68	79,297	JUN 01, 2007

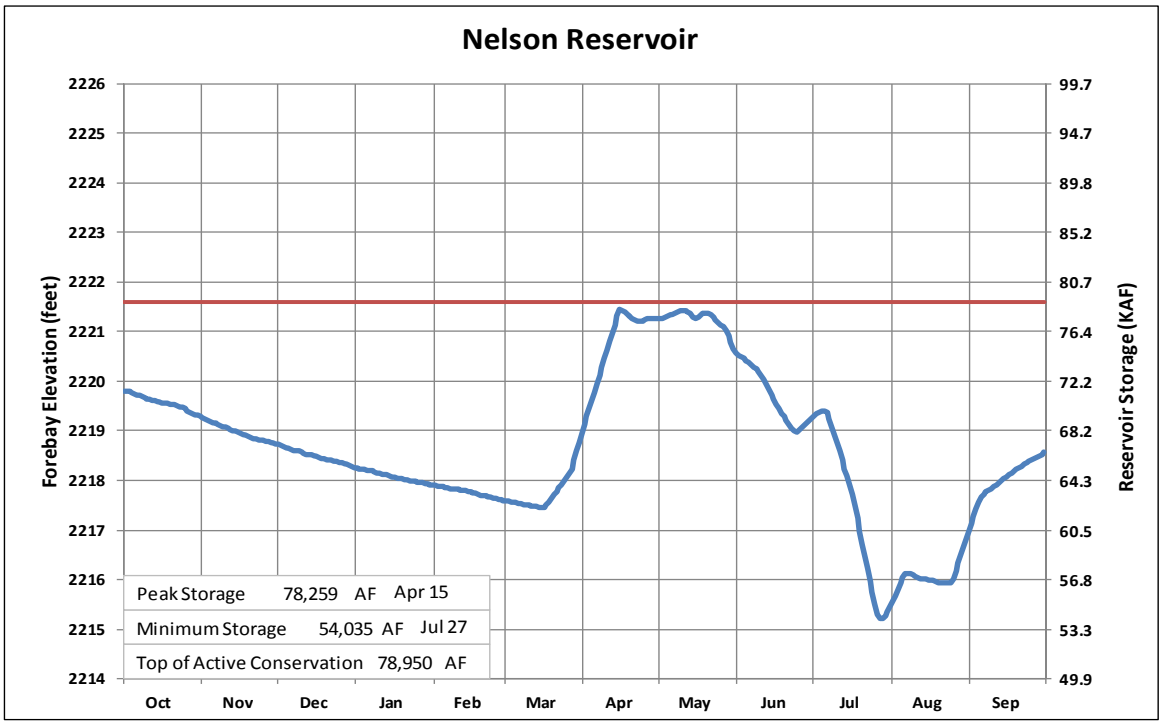
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	56,076	OCT 14-SEP 15	61,100	OCT 14-SEP 15
DAILY PEAK (CFS)	388	APR 13, 2015	642	JUL 12, 2015
DAILY MINIMUM (CFS)	0	*	0	*

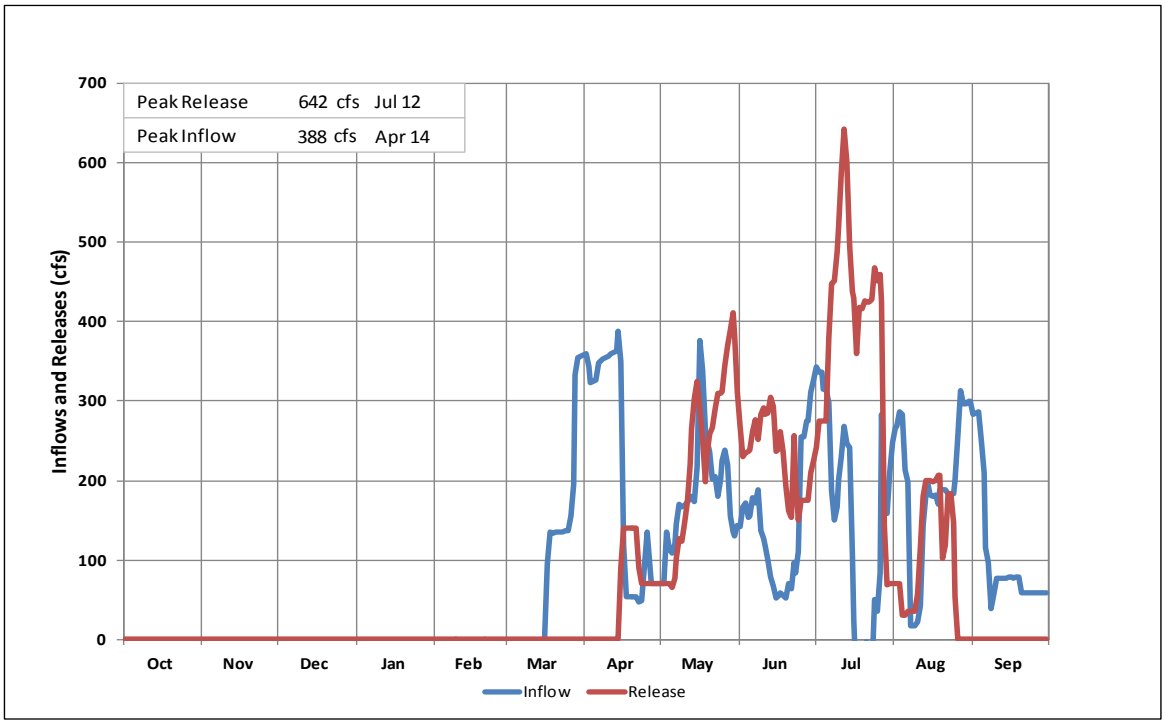
* During nonirrigation season

MONTH	INFLOW*		OUTFLOW*		CONTENT	
	KAF	% OF AVG	KAF	% OF AVG	KAF	% OF AVG
OCTOBER	-2.1	---	0.0	---	69.4	125
NOVEMBER	-2.2	---	0.0	---	67.2	125
DECEMBER	-1.9	---	0.0	---	65.3	125
JANUARY	-1.4	---	0.0	---	63.9	126
FEBRUARY	-1.2	---	0.0	---	62.8	127
MARCH	5.2	331	0.0	---	68.0	128
APRIL	12.7	167	3.1	479	77.5	125
MAY	11.3	161	14.2	182	74.6	125
JUNE	8.6	108	14.0	181	69.2	116
JULY	9.2	177	23.5	220	54.9	104
AUGUST	11.8	154	6.3	75	60.4	116
SEPTEMBER	6.0	94	0.0	---	66.5	121
ANNUAL	56.1	133	61.1	147		
APRIL-JULY	41.7	150				

* Average for the 1947-2015 period.

FIGURE MTG11





Water Year 2015

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 1,331,725 AF. 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. Reclamation has a storage allocation agreement with the Northern Cheyenne Tribe for 30,000 AF. The water can be used for multiple beneficial uses. A separate piece of legislation has allocated up to 300,000 AF of water for the Crow Tribe. Reclamation has an industrial water service contract with Pennsylvania Power & Light, MT for 6,000 AF. No additional water can be contracted out of Yellowtail Dam after the passage of the Crow Tribe Water Rights Settlement Act of 2010. 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 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 AF and a surface area of 17,279 acres at a reservoir elevation of 3657.00 feet (the top of the spillway gates). Since closure of the dam in November 1965, the reservoir has accumulated a sediment volume of 103,415 AF below a reservoir elevation of 3657 feet. This volume represents a 7.5 percent reduction in capacity and an average annual reduction of 2,480 AF from November 1965 through July 2007. The revised area-capacity table was put into effect on January 1, 2011, reflecting the new storage levels.

WY 2015 was a wetter than average year. Valley and mountain precipitation during August 2015 was much above average followed by above average precipitation in September 2015. As a result, the inflow into Bighorn Lake during August 2015 was 136 percent of average and September 2015 was 135 percent of average. After a peak content of 1,027,171 AF on Junly 9, 2015, storage in Bighorn Lake slowly and steadily declined until the late August 2015 rains. Bighorn Lake ended up filling and going into the exclusive flood control pool from the rains and peaked for the year at a content of 1,043,430 AF at an elevation of 3641.77 feet on September 17, 2015. Storage in Bighorn Lake ended WY 2015 with a content of 1,021,582 AF at an elevation of 3640.08 feet. This was 117 percent of average. Releases to the Bighorn River were increased to 4,500 cfs on September 26, 2015 and stayed at this rate for the rest of WY 2015.

At the end of WY 2014, storage in Boysen Reservoir located on the Wind River was at 115 percent of average and Buffalo Bill Reservoir, located on the Shoshone River, was at 114 percent of average. The WYAO established the winter release out of Boysen Reservoir at

925 cfs in late October 2014 with plans for a flushing flow in March 2015 at the request of Wyoming Game and Fish. The winter release rate from Buffalo Bill was set to 350 cfs in early November 2014.

Valley and mountain precipitation were well below average in October 2014 at 33 and 50 percent of average, respectively. However, inflows into Bighorn Lake stayed above average at 112 percent of average. The reservoir elevation went below an elevation of 3640.0 feet, top of joint-use pool on October 1, 2014. Releases began decreasing from 4,500 cfs on October 6, 2015 to conserve storage and by the end of October 2015 releases were at 3,000 cfs.

On November 1, 2014, total storage in Bighorn Lake was 989,737 AF at an elevation of 3637.47 feet, 112 percent of average. On November 6, 2014, the release to the Bighorn River was reduced to 2,830 cfs, the expected fall/winter release based on the operating criteria. On November 12, 2014, Reclamation hosted a public meeting in Billings, MT to discuss the water supply outlook and projected fall and winter operations of the Bighorn River Basin. The fall/winter release rate stayed the same following the meeting. The fall/winter release rate is based on the procedures outlined in the operating criteria. The forecasted gains, the planned winter releases out of Boysen and Buffalo Bill Reservoirs, and an end of March 2015 elevation target of 3619.0 feet was used to calculate the fall/winter release of 2,830 cfs from Yellowtail Dam, 115 percent of average.

Precipitation was above average in November 2014 and December 2014. The total precipitation for October 2014 through December 2014 was near average. The valley precipitation was 105 percent of average while the mountain precipitation was 96 percent of average. Gains over the three month period were 97 percent of average. On January 1, 2015, the NRCS measured the snow water equivalent of the mountain snowpack at 96 percent of average. During February and March 2015, snow fell in the mountains at near average rate. On March 1, 2015, the NRCS measured the mountain snowpack at 94 percent of average. The valley precipitation was 66 percent of average in January 2015 and 176 percent of average in February 2015. Between the above average precipitation and above average temperatures, the runoff into Bighorn Lake was 159 percent of average in February 2015. On February 11, 2015, the daily average inflow peaked at 4,225 cfs. The increased inflow was not from Boysen or Buffalo Bill Reservoirs but was primarily due to the warm temperatures melting the low elevation snow and above average valley precipitation.

On March 1, 2015, the April-July 2015 runoff was forecasted to be 1,065,600 AF, 99 percent of average. Storage in Bighorn Lake on March 1, 2015 was 905,435 AF, an elevation of 3629.35 feet or 118 percent of average. This was 4.3 feet or 36,700 AF higher than what was forecasted on November 1, 2014.

With the objective to evacuate storage to an elevation of 3614.50 feet by the end of April 2015, the river release was increased on March 16, 2015 to 3,500 cfs. However, March 2015 was a dry month. The mountain precipitation was only 44 percent of average and valley precipitation was only 47 percent of average. Snowpack ended up peaking a month early on March 14, 2015 at 77 percent of the average snowpack peak.

The storage content in Bighorn Lake on April 1, 2015 was 866,374 AF at an elevation of 3624.80 feet. The mountain snowpack above Bighorn Lake decreased to 72 percent of average. The April 1, 2015 forecasted April-July 2015 runoff was 675,500 AF, 62 percent of average. The river release was decreased back to 3,000 cfs by April 2, 2015. Bighorn Reservoir was expected to be 4.8 feet short of filling to the normal full pool of 3640.00 feet. Before the start of rainbow trout spawn, the river release was decreased to 2,200 cfs on April 14, 2015 to conserve storage. The Bureau of Indian Affairs (BIA) started diversions to the Bighorn Canal on April 7, 2015 which is earlier than normal but indicative of dry conditions. Precipitation was only 68 percent of average in the mountains and 89 percent of average in the valley for the month of April 2015.

By May 1, 2015, storage in Bighorn Lake had decreased to 843,148 AF at an elevation of 3621.80 feet. Snowpack on May 1, 2015 was 61 percent of average and the May 2015 through July 2015 runoff was forecasted to be 506,800 AF or 54 percent of average. In the May 2015 reservoir and river operating plan, Bighorn Reservoir was expected to fill only to approximately 3630.0 feet. Inflow was coming a little lower than expected for the first half of May 2015. However, a steady weather system from the south resulted in much above average precipitation for the second half of May 2015. The mountain precipitation ended up being 157 percent of average and valley precipitation ended up being 189 percent of average in May 2015. Most of the precipitation was rainfall with little to no accumulation to the snowpack. The greatest amount of precipitation occurred above Boysen Reservoir and the Bighorn Mountains. Several release increases were made from Boysen and Buffalo Bill Reservoirs due to the precipitation and snowmelt runoff. Releases from Yellowtail Dam were increased several times in May 2015 starting on May 26, 2015. The river release was 7,000 cfs by the end of May 2015.

On June 1, 2015, storage in Bighorn Lake was 967,936 AF, an elevation of 3635.57 feet. This was 120 percent of average. Snowpack on June 1, 2015 was 55 percent of average. The June 1, 2015 forecast for June through July 2015 runoff was 1,027,000 AF, 155 percent of average. June 2015 precipitation was near average but runoff continued to remain much above average. June 2015 inflow totaled 876,900 AF or 214 percent of average. Bighorn Lake reached normal full pool, an elevation of 3640.00 feet on June 5, 2015 and storage started into the exclusive flood control pool. To control the rate of fill and manage storage in the flood control space in Bighorn Lake, the river release was increased to 14,000 cfs on June 9, 2015 and was essentially kept at this rate until June 24, 2015. The daily average inflow into Bighorn Lake peaked at 18,950 cfs on June 12, 2015. Storage peaked in Bighorn Lake on June 20, 2015 at 1,129,858 AF, an elevation of 3647.83 feet or 7.83 feet into the exclusive flood control pool. Operations were closely coordinated between the Montana Area Office, Wyoming Area Office, U.S. Army Corps of Engineers, and Montana Fish, Wildlife and Parks. As inflows and storage continued to decrease, the river release was decreased to 7,500 cfs by the end of July 2015.

On July 1, 2015, the storage content in Bighorn Lake was 1,091,657 AF at an elevation of 3645.25 feet, 119 percent of average. July 2015 was near normal for precipitation and temperature. Coordination of operations continued with the U.S. Army Corps of Engineers to manage the storage in the exclusive flood control pool. Releases were slowly decreased while the reservoir was in the exclusive flood control pool. All storage in the exclusive flood control

pool was evacuated on July 29, 2015. The river release was decreased to 2,500 cfs by the end of July 2015 to match the forecasted long term release heading into the fall.

Inflows into Bighorn Lake continued to stay above average through the month of August 2015. The river release was kept at 2,500 cfs throughout the months of August and September 2015. Several shift changes to the river gage were required to keep up with the algae growth. Valley precipitation was 84 percent of average and mountain precipitation was 92 percent of average in August 2015.

Valley precipitation was well below average at 12 percent and mountain precipitation was well below average at 32 percent in September 2015. Storage in Bighorn Lake ended WY 2015 with a content of 969,502 AF at an elevation of 3635.71 feet. This was 111 percent of average and 52,080 AF or 4.37 feet lower than at the end of WY 2014. Winter releases were set to 2,450 cfs in November 2015 based on the procedures outlined in the operating criteria.

Inflows into Bighorn Lake during April-July 2015 were 142 percent of average, totaling 1,542,800 AF. This was 182,100 AF lower than the April-July 2014 inflow. It was the fifteenth highest runoff on record. It was the third highest runoff in June. The annual runoff into Bighorn Lake during WY 2015 totaled 2,742,369 AF. This was 129 percent of average but 8 percent or 223,539 AF lower than the total runoff received during WY 2014.

The total amount of water released to the Bighorn River during 2015 was 2,721,368 AF or 129 percent of average. This was about 5 percent or 149,518 AF lower than what was released to the Bighorn River in 2014. Releases to the river were second highest of record in June.

The water levels of Bighorn Lake during 2015 allowed for full service recreation at all marinas around Bighorn Lake for most of the recreation season from Memorial Day through Labor Day weekend. When water levels were above 3642.00 feet, the Black Canyon Campground was impacted.

Total generation produced at Yellowtail Powerplant during 2015 was 794,362 kilowatt-hours, 105 percent of average. This was 225,499 kilowatt-hours less than what was generated in 2014. Approximately 79 percent of all the water released from Yellowtail Dam during 2015 was released through the powerplant (2,199,727 AF). The remainder of the water (594,722 AF) was released either through the evacuation outlet gates or the spillway gates.

The Corps estimated that during 2015, Bighorn Lake prevented $56,800 in local flood damages and $5,216,000 in flood damages downstream on the Missouri River below Fort Peck Reservoir. Since construction of Yellowtail Dam in 1965, Bighorn Lake has reduced flood damages by a total of $170,555,100.

Important Events - Water Year 2015

All of Water Year 2015: Yellowtail Powerplant was limited to three units for the major rewind project.

October 15, 2014: A black start test of the Yellowtail Powerplant was conducted. All four units of the Yellowtail Powerplant were offline for approximately 4 hours. The Yellowtail Powerplant was restarted in black using the standby generator.

November 6, 2014: Based on the operating criteria, Reclamation increased and maintained the fall and winter release out of Bighorn Lake to the Bighorn River at 2,830 cfs. (2,830 cfs to the Bighorn River and 0 cfs to the Bighorn Canal)

November 12, 2014: Reclamation hosted a combined annual fall water supply meeting and Bighorn River System Issues Group meeting at the Great Plains Regional Office in downtown Billings, Montana to discuss the operations and operating criteria of the Bighorn River Basin. Clayton Jordan, Engineer in the Reservoir Operations Group for MTAO, presented the water supply outlook and the proposed operations of Bighorn Lake and Bighorn River for the fall and winter of the 2014-2015. The operating criteria were opened up for an official public comment period that ended in January 2015.

November 12, 2014: Protective relays were upgraded in the Yellowtail Powerplant. The powerplant was limited to two units during the upgrade.

December 2, 2014: Exciter bridge testing of the Yellowtail Powerplant was conducted. The powerplant was limited to two units during the upgrade.

January 12, 2015: The Yellowtail Powerplant was limited to Unit 4 while WAPA performed work on the 115 KV main bus in the switchyard.

January 26, 2015: The Yellowtail Powerplant was limited to Unit 4 while WAPA performed work on the 115 KV main bus in the switchyard.

February 14, 2015: The Yellowtail Powerplant was limited to Unit 4 while WAPA performed work on the 115 KV main bus in the switchyard.

February 19, 2015: To evacuate storage and meet the reservoir elevation targets, Bighorn River releases were increased to 3,000 cfs. (3,000 cfs to the Bighorn River and 0 cfs to the Bighorn Canal)

February 19, 2015: To evacuate storage and meet early spring reservoir elevation targets, Bighorn River releases were increased to 3,200 cfs. (3,200 cfs to the Bighorn River and 0 cfs to the Bighorn Canal)

February 23-25, 2015: Exciter bridges were installed in the Yellowtail Powerplant. The Yellowtail Powerplant was limited to two units.

February 25-26, 2015: Yellowtail Powerplant was limited to two units for relaying testing.

February 26-27, 2015: Yellowtail Powerplant was limited Unit 4 while WAPA performed work in the switchyard.

March 16, 2015: To evacuate storage and meet early spring reservoir elevation targets, Bighorn River releases were increased to 3,500 cfs. (3,500 cfs to the Bighorn River and 0 cfs to the Bighorn Canal)

April 1-2, 2015: To conserve storage, Bighorn River releases were decreased to 3,000 cfs. (3,000 cfs to the Bighorn River and 0 cfs to the Bighorn Canal)

April 7, 2015: The BIA requested diversions to the Bighorn Canal begin at 100 cfs. In response, the total release out of Yellowtail Afterbay Reservoir was kept at 3,000 cfs to conserve storage. (2,900 cfs to the Bighorn River and 100 cfs to the Bighorn Canal) Throughout the remainder of the year, as irrigation demands varied, diversions to the Bighorn Canal and releases to the Bighorn River were adjusted as needed to meet the irrigation demands and the desired river flows.

April 8-9, 2015: To conserve storage, Bighorn River releases were decreased to 2,500 cfs. (2,500 cfs to the Bighorn River and 200 cfs to the Bighorn Canal)

April 13-15, 2015: To conserve storage, Bighorn River releases were decreased to 2,200 cfs while Bighorn Canal demands increased. (2,200 cfs to the Bighorn River and 250 cfs to the Bighorn Canal)

April 21, 2015: There was an inspection of the Yellowtail Dam Spillway Tunnel followed by a flushing flow. Flows were gradually increased to 3,000 cfs then gradually decreased back to 0 cfs through the spillway. The flush took about one hour.

April 23, 2015: The main feed breaker for the river control gates on the Yellowtail Afterbay Dam was replaced. This required steady releases from the Yellowtail Dam to keep the Yellowtail Afterbay Reservoir stable.

May 6 and May 13, 2015: Turbine releases were limited Unit 4 for maintenance conducted by WAPA in the Yellowtail Switchyard.

May 26, 2015-June 3, 2015: Continuous rain showers accompanied by the snowmelt runoff increased inflows into Bighorn Lake. Releases were also being increased from Boysen and Buffalo Bill Reservoirs. The river release was increased over a several day period from 2,200 cfs to control the rate of fill of storage in Bighorn Lake. This also required the initiating of a bypass release. (12,000 cfs to the Bighorn River and 325 cfs to the Bighorn Canal)

June 1-12, 2015: Semi-annual maintenance of the Yellowtail Afterbay Dam sluicegates required the Yellowtail Afterbay Reservoir be maintained above an elevation of 3186.0 feet to maintain river flows through the radial gates and below an elevation of 3190.0 feet for stop log protection.

June 8-9, 2015: Streamflows in the Bighorn River Basin remained high and releases from Boysen and Buffalo Bill Reservoirs were being increased. The river release was increased over a two day period to control the rate of fill of storage in Bighorn Lake. 14,000 cfs ended up being the peak release for the water year. (14,000 cfs to the Bighorn River and 325 cfs to the Bighorn Canal)

June 11, 2015: The River release was reduced to 13,000 cfs for a portion of the day to allow the maintenance on the Yellowtail Afterbay Dam gates to be completed.

June 24, 2015-July 1, 2015: With the passing of the peak inflow from the rain and snowmelt runoff, the river releases were being reduced to provide some relief to the river. There was storage in the exclusive flood control pool so operations were being coordinated with the U.S. Army Corps of Engineers. Meanwhile, the BIA was also increasing diversions to the Bighorn Canal. (7,000 cfs to the Bighorn River and 500 cfs to the Bighorn Canal)

July 6, 2015: Inflows to Bighorn Lake continued to decline. In response, the river release was decreased. (6,000 cfs to the Bighorn River and 430 cfs to the Bighorn Canal)

July 8-10, 2015: Inflows to Bighorn Lake continued to decline. In response, the river release was decreased. (4,500 cfs to the Bighorn River and 480 cfs to the Bighorn Canal)

July 14, 2015: Inflows to Bighorn Lake continued to decline. In response, the river release was decreased. The BIA requested the diversions to the Bighorn Canal be decreased and maintained at 180 cfs to allow them to chemically treat the heavy algae growth in the Bighorn Canal. (4,300 cfs to the Bighorn River and 180 cfs to the Bighorn Canal)

July 16, 2015: Inflows to Bighorn Lake continued to decline. In response, the river release was decreased. The BIA requested the diversions to the Bighorn Canal be increased following the chemical treatment of the pond weed in the Bighorn Canal. (4,000 cfs to the Bighorn River and 480 cfs to the Bighorn Canal)

July 20, 2015: Inflows to Bighorn Lake continued to decline. In response, the river release was decreased. (3,500 cfs to the Bighorn River and 480 cfs to the Bighorn Canal)

July 22-31, 2015: Turbine releases were limited and restricted to 2-unit capacity to allow for a 10-day maintenance outage on Unit 2 of the Yellowtail Powerplant. The maintenance required a couple day bypasses of releases around the Yellowtail Powerplant.

July 24-25, 2015: Inflows to Bighorn Lake continued to decline. In response, the river release was decreased. This allowed the bypass of release to be stopped. (2,500 cfs to the Bighorn River and 480 cfs to the Bighorn Canal)

August 3-13, 2015: Turbine releases were limited and restricted to 2-unit capacity to allow for a 10-day maintenance outage on Unit 4 of the Yellowtail Powerplant.

August 31, 2015-September 1, 2015: Annual maintenance was conducted on the Yellowtail Afterbay Dam radial gates. The Yellowtail Afterbay Reservoir had to be maintained between an elevation of 3175.0 ft and 3178.5 feet.

October 7, 2015: The Bighorn Canal was shut down for the irrigation season.

Additional hydrologic and statistical information pertaining to the operations of Bighorn Lake during 2015 can be found in Table MTT11 and MTG12.

For more detailed information on the operations of Boysen and Buffalo Bill Reservoirs during 2015, refer to the narratives for Boysen Reservoir and Powerplant and Shoshone Project under the responsibility of the WYAO.

TABLE MTT11
HYDROLOGIC DATA FOR 2015
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	469,910	469,910
TOP OF ACTIVE CONSERVATION	3614.00	788,208	318,298
TOP OF JOINT USE	3640.00	1,020,573	232,365
TOP OF EXCLUSIVE FLOOD CONTROL	3657.00	1,278,896	258,323

STORAGE-ELEVATION DATA	ELEVATION (FEET)	STORAGE (AF)	DATE
BEGINNING OF YEAR	3640.08	1,020,582	OCT 01, 2014
END OF YEAR	3635.71	969,502	SEP 30, 2015
ANNUAL LOW	3621.17	837,969	MAY 06, 2015
ANNUAL HIGH	3647.83	1,129,858	JUN 20, 2015
HISTORIC HIGH	3656.43	1,365,198	JUL 06, 1967

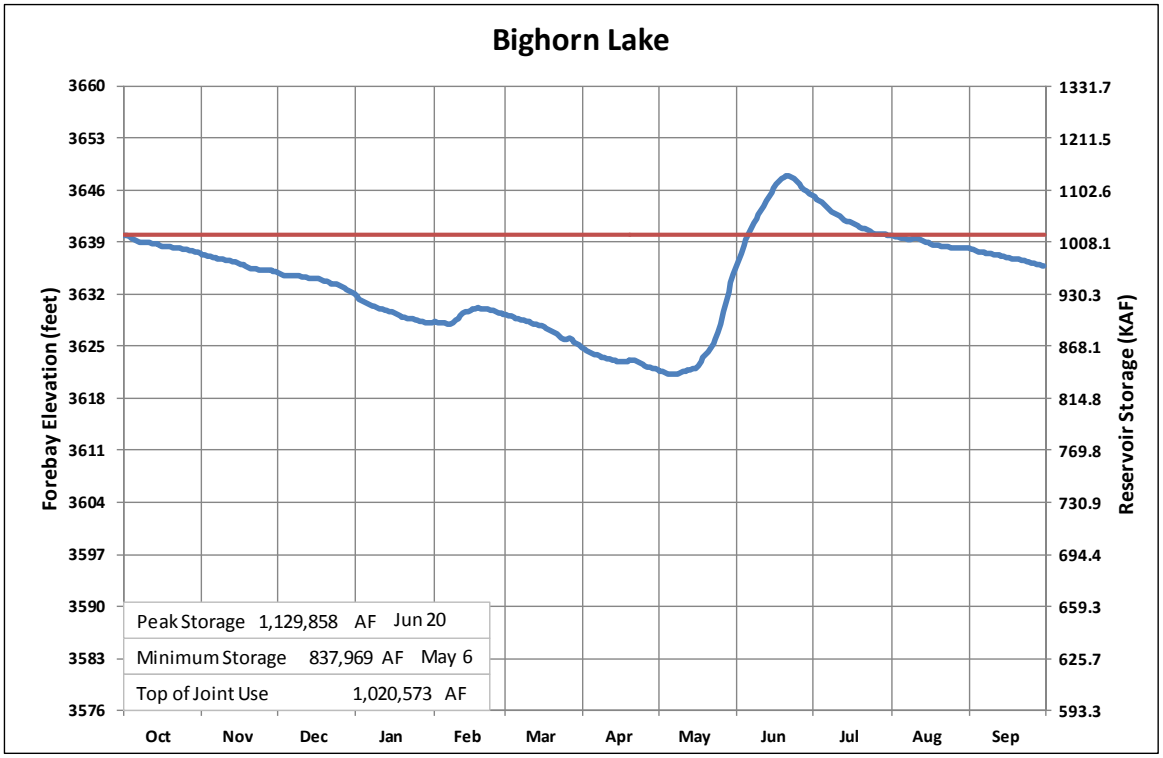
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW*	DATE
ANNUAL TOTAL (AF)	2,742,369	OCT 14-SEP 15	2,721,368	OCT 14-SEP 15
DAILY PEAK (CFS)	18,947	JUN 12, 2015	14,024	JUN 10, 2015
DAILY MINIMUM (CFS)	979	JAN 01, 2015	2,196	APR 23, 2015
PEAK SPILL (CFS)			10,484	JUN 13, 2015
TOTAL SPILL (KAF)			594,920	10/01-08/2014 5/28-7/14/2015

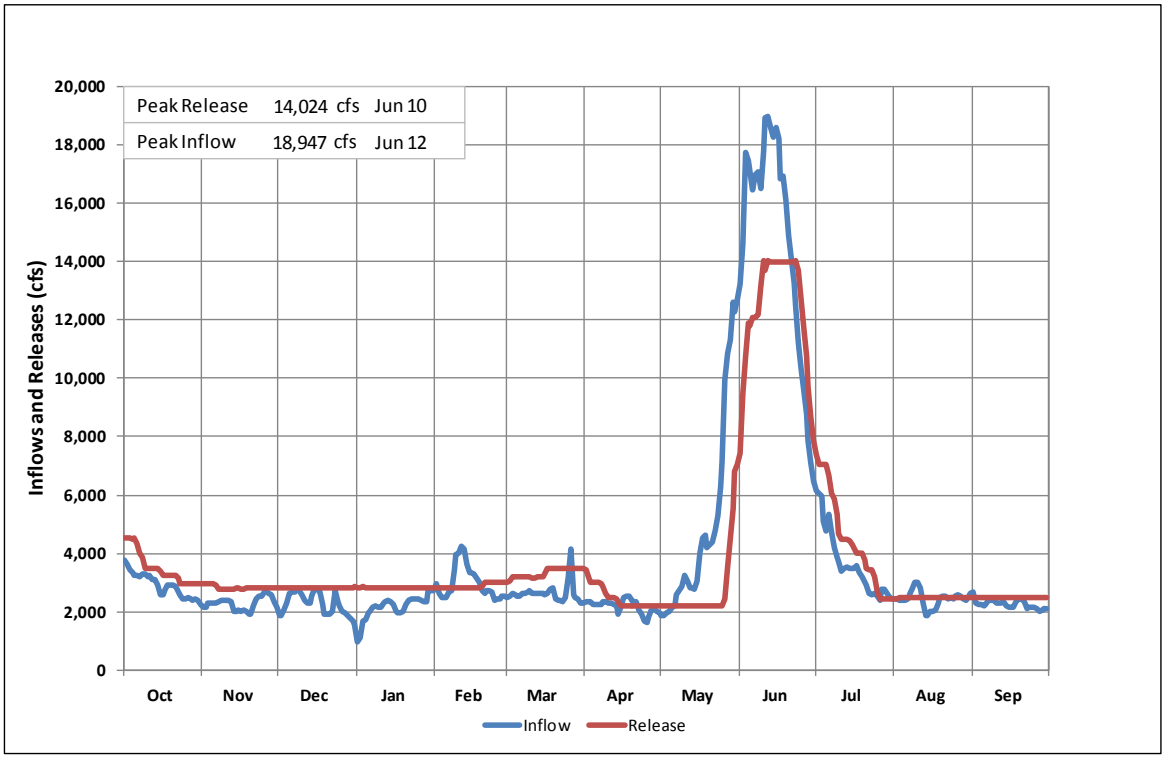
*Discharge to the Bighorn River

MONTH	INFLOW		OUTFLOW*				CONTENT	
	KAF	% OF AVG	CANAL KAF	% OF AVG	RIVER KAF	% OF AVG	KAF	% OF AVG
OCTOBER	178.9	112	0.0	---	214.9	126	989.7	112
NOVEMBER	136.0	112	0.0	---	168.6	97	961.4	110
DECEMBER	138.8	134	0.0	---	173.8	97	930.6	112
JANUARY	133.6	129	0.0	---	173.3	98	895.2	113
FEBRUARY	166.4	159	0.0	---	160.2	100	905.3	118
MARCH	161.5	111	0.0	---	204.4	112	866.7	114
APRIL	130.5	87	10.4	1,151	147.9	82	843.1	113
MAY	311.8	116	22.9	200	168.4	86	967.9	119
JUNE	876.9	214	21.2	100	736.1	254	1,091.7	119
JULY	223.6	88	28.4	104	272.2	98	1,018.9	113
AUGUST	150.1	102	24.2	91	153.0	89	997.8	115
SEPTEMBER	134.2	83	16.5	90	148.4	97	969.5	111
ANNUAL	2,742.4	129	123.6	112	2,721.4	118		
APRIL-JULY	1,542.8	143						

* Average for the 1967-2015 period.

FIGURE MTG12





Water Year 2015

SUMMARY

OF OPERATIONS

FOR WATER YEAR 2015

FOR BIGHORN BASIN RESERVOIRS

(BULL LAKE, PILOT BUTTE, BOYSEN, ANCHOR, BUFFALO BILL)

UNDER THE RESPONSIBILITY

OF THE

WYOMING AREA OFFICE

CLIMATE SUMMARY

Widespread precipitation that fell between September 27, 2014 and October 3, 2014 soaked much of the Bighorn Basin (Basin), giving a boost to soil moisture conditions going into WY 2015. Many locations received over an inch of rain from the slow moving storm, with a report of over four inches falling at a site on the North Fork of the Little Wind River. As the front moved out of the Basin, warm and dry conditions prevailed during the remainder of October 2014. Total precipitation for October 2014 was below normal in the Boysen and Buffalo Bill drainages, while temperatures were about five degrees Fahrenheit warmer than average.

The mild fall weather continued until November 10, 2014 when an arctic cold front dropped into the state. Winds in excess of 50 miles per hour preceeded the front and temperatures dropped more than 50 degrees Fahrenheit over a 15 hour period in Cody and Lander. This storm produced the first significant snowfall of the season, with over a foot of snow reported in the Wind River Mountains. On November 12, 2014 new record lows occurred at Lake Yellowstone, Riverton, and Worland, where temperatures dropped to -20, -18, and -21 degrees Fahrenheit, respectively. Not only were these new daily records, but also some of the lowest temperatures ever recorded in the month of November. The next moisture producing storm brought snow to western and central Wyoming on November 22, 2014 and was followed by a stronger slow moving system on November 24, 2014. As a result of these storms, Brooks Lake in the Boysen watershed, received 29 inches of snow and the Evening Star Snotel in the drainage above Buffalo Bill reported an accumulation of 20 inches. High winds and record warmth closed out the month as wind speeds in excess of 80 miles per hour uprooted trees in Cody on November 27, 2014. November 28, 2014 recorded high temperatures of 64 degrees Fahrenheit at Lander and 57 degrees Fahrenheit at Riverton. For the month, temperatures in the Buffalo Bill drainage were about 7 degrees Fahrenheit below average and about two degrees Fahrenheit colder than normal in the Wind River basin. Precipitation in both the Buffalo Bill and Boysen watersheds was above average. On December 1, 2014 the snowpack was 106 percent of average in the Buffalo Bill drainage and 85 percent of average in the drainage above Boysen.

December 2014 was a little warmer and quite a bit wetter than normal, as storms on December 14, 25, and 29, 2014 brought moisture to the Basin. Precipitation was 270 and 149 percent of average, respectively, at lower elevation weather stations in the Wind and Shoshone River drainages, with above average precipitation in the mountains as well. The snowpack above Buffalo Bill increased to 109 percent of average, while Boysen snowpack rose 12 percent to 97 percent of on January 1, 2015. As the storm on December 29, 2014 moved out of the state, an arctic air mass filled in and combined with clear skies to produce extremely cold temperatures. The low at Worland reached -31 degrees Fahrenheit, while Lander reported negative 27 degrees Fahrenheit in the early morning hours of December 31, 2014.

Above average temperatures continued in January 2015, with the Wind River drainage about four degrees Fahrenheit warmer than normal and the Shoshone basin almost three degrees Fahrenheit above average. No major snowfall events occurred during January 2015. Precipitation in the Wind River Mountains was 60 percent of average during January 2015, while

weather stations in the valley only received 28 percent of normal. Conditions in the Shoshone basin were better, with the mountains receiving 97 percent of average January precipitation and lower elevation sites reporting 81 percent of average. Gains that were made in December 2014 were lost in January 2015 as the snowpack above Boysen and Buffalo Bill fell 14 and 7 percent further from average, respectively. On February 1, 2015 the Boysen snowpack was 83 percent of average and the mountain snowpack above Buffalo Bill Reservoir was 102 percent of normal.

Snow returned to the Basin in early February 2015, as a storm on February 2, 2015 brought widespread precipitation east of the continental divide, with the upper reaches of the Wind River Range reporting the highest accumulations. A powerful Pacific storm system impacted the Basin from February 5, 2015 through February 7, 2015 with damaging winds gusting from 60 to 80 miles per hour over the three day period. With the wind came warm temperatures, and Greybull and Lander both observed record highs of 58 degrees Fahrenheit on February 7, 2015. In addition, Greybull, Lake Yellowstone, Lander, Riverton, and Worland set new records for the warmest low temperature on February 7, 2015. At Lander, the low on February 7, 2015 of 36 degrees Fahrenheit replaced the previous warmest low of 34 degrees Fahrenheit, which had stood since 1899. Beginning on February 14, 2015 back to back storms brought wet snow and some rain to western and central Wyoming. Many locations in the Wind River Mountains received close to one foot of new snow and the Marquette Snotel in the Buffalo Bill watershed reported 14 inches from the storms. The mild winter continued during February 2015 with temperatures running about four degrees Fahrenheit warmer than normal. Precipitation in the Wind River valley was almost three times normal for February 2015, while lower elevation sites in the Shoshone drainage received about 80 percent of average. Mountain precipitation in both the Shoshone and Wind River watersheds was about 90 percent of average. On March 1, 2015 the snowpack above Boysen and Buffalo Bill was 87 and 98 percent of average, respectively.

A pair of winter storms brought snow, gusty wind, and cold temperatures to Wyoming beginning on March 2, 2015 with snowfall reports of six to twelve inches common in the southern Wind River Mountains. Accumulations decreased moving north, and the Shoshone drainage received little benefit from this storm. At many stations, the precipitation they received from this storm was their only moisture for the month. Record high temperatures preceded a cold front that produced high winds and a few scattered thunderstorms over the northwest mountains on March 28, 2015. Temperatures at Lander and Riverton reached the mid 70's on March 27 and 28, 2015 and Worland had a high of 80 degrees Fahrenheit on March 28, 2015. Temperatures at Lake Yellowstone climbed into the 50's ahead of the front, setting new records on March 27 and 28, 2015. Lander saw wind speeds in excess of 70 miles per hour as the front passed. March 2015 precipitation at Weather Service stations in the Shoshone basin was only 38 percent of normal, while the Wind River valley fared a little better at 61 percent of average. Precipitation in both the Absaroka and Wind River Mountains was about 50 percent of normal and temperatures were about five degrees Fahrenheit warmer than normal for March 2015. The resulting effect on the snowpack was a 20 percent decrease compared to average in the Wind River Mountains during March 2015 and a 26 percent drop from average in the Buffalo Bill watershed. On April 1, 2015 the snowpack above Buffalo Bill Reservoir was 72 percent of average and 67 percent of average in the Boysen watershed.

Dry conditions persisted during the first half of April 2015, but a Pacific cold front on April 15, 2015 brought a change in the weather. Ahead of the front, temperatures climbed into the mid 70's at Lander and Riverton and reached 81 degrees Fahrenheit at Worland. Then, as the moisture laden front slowly moved across the state, significant amounts of snowfall occurred across the Basin. In the Boysen watershed, the mountains of the Little Wind River drainage received the most snow from the storm, reporting 12 to 18 inches of wet snow. In the mountains above Buffalo Bill Reservoir, the Marquette Snotel reported 22 inches of snow with reports of one foot accumulations over a large area. The final storm of the month moved through the area beginning on April 25, 2015. Locations above 6,500 feet received around six inches of snow, while about a half inch of rain fell at lower elevations. April 2015 precipitation in the lower elevations of the Boysen watershed was 109 percent of average, with the mountains only receiving 83 percent of normal. The Buffalo Bill area received 62 percent of normal precipitation in the Shoshone valley and 76 percent of average in the mountains. April 2015 temperatures were about one degree Fahrenheit above average for the Shoshone basin and three degrees Fahrenheit warmer than normal in the Wind River basin.

Widespread precipitation moved into Wyoming beginning on May 6, 2015 primarily as rain at lower elevations and as wet snow in the mountains. This was the first of several storms that brought significant precipitation to the Basin during the month. From May 6, 2015 through May 10, 2015 measureable precipitation fell every day at many sites with storm totals approaching two and a half inches. The next storm arrived on May 14, 2015 and rain fell somewhere in the Basin every day for the rest of the month. On May 14, 2015 the weather station at Burris in the Wind River drainage, recorded precipitation on 16 consecutive days and on 24 of the 31 days in May 2015. The weather station at Diversion Dam, which is also in the Wind River basin, received 5.95 inches of precipitation during May 2015. This was the highest May precipitation of record for the Diversion Dam weather station, which normally receives about nine inches of moisture during an entire year. For the month of May 2015, precipitation in the Wind River valley was 251 percent of average and 174 percent of average in the mountains. In the Shoshone basin, lower elevation precipitation was 176 percent of average, with the mountains receiving 129 percent of average. Temperatures during May 2015 were about two degrees Fahrenheit colder than normal.

Scattered showers continued to fall during the first week of June 2015, followed by a week of warm and dry conditions. A system that moved through the state on June 14, 2015 brought widespread rain over the next four days. As skies cleared, dry air dominated and little precipitation fell during the remainder of the month. June 2015 was especially warm in the Shoshone basin where the Lake Yellowstone weather station had the warmest June of record, as temperatures on June 8, 11, 14, 27, 28, 29, and 30, 2015 all eclipsed previous records. For the month, the Shoshone basin was about 7 degrees Fahrenheit warmer than normal while temperatures in the Wind River basin were about 5 degrees Fahrenheit above average. June 2015 precipitation was right at average in the Boysen watershed and 73 percent of average in the Buffalo Bill drainage.

July 2015 was a couple degrees Fahrenheit cooler than normal in both the Shoshone and Wind River basins. Precipitation was scattered as the result of localized thunderstorms and the majority of the rainfall occurred in the first ten days of the month. The Shoshone drainage

received less than normal rainfall while precipitation in the Wind River basin was above average.

Precipitation during August 2015 was a reversal from July 2015, with the Shoshone Basin receiving above average moisture and the Boysen watershed getting less than average moisture. Precipitation totals decreased from the northwest to the southeast across the Basin with the Tower Falls weather station receiving 183 percent of average of the August 2015 precipitation compared to the Boysen Dam station that reported 25 percent of normal. An unusually strong cold front moved through Wyoming on August 23, 2015 with Worland and Lake Yellowstone both setting new record lows for the date. The low at Worland reached 35 degrees Fahrenheit while Lake Yellowstone got down to 27 degrees Fahrenheit. The next day, Lake Yellowstone turned around and tied the record high at 79 degrees Fahrenheit and on August 25, 2015 the temperature at Lake Yellowstone reached 80 degrees Fahrenheit, which broke the previous record for August 25. August 2015, temperatures were close to normal in both the Wind River and Shoshone drainages.

September 2015 was warm and dry in the Boysen watershed. The Buffalo Bill drainage received more rainfall but still fell short of average for the month. The Wind River valley was over 6 degrees Fahrenheit warmer than normal with both Lander and Riverton recording their warmest September of record. The Wind River basin only got ten percent of average precipitation in September 2015 and the Boysen Dam and Diversion Dam weather stations recorded no rain during the month. In the Shoshone basin, temperatures were also about 6 degrees Fahrenheit warmer than normal with 84 percent of average precipitation.

The 2015 mountain snow water content for the drainage basins in Wyoming is shown on Table WYT1. The 2015 water supply forecasts are shown on Table WYT2 and the 2015 precipitation in inches and the percent of average is shown on Table WYT3.

TABLE WYT1
2015 MOUNTAIN SNOW WATER CONTENT[1]
AS A PERCENT OF THE 1981-2010 AVERAGE

DRAINAGE BASIN	JAN 1		FEB 1		MAR 1		APR 1		MAY 1	
	INCHES	%	INCHES	%	INCHES	%	INCHES	%	INCHES	%
BULL LAKE	4.43	92	5.05	80	6.60	83	5.35	53	4.32	48
BOYSEN	5.50	97	6.41	83	8.39	87	8.05	67	6.54	56
BUFFALO BILL	8.62	109	11.27	102	13.40	98	11.97	72	11.40	67

[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, Hobbs Parks, 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
2015 WATER SUPPLY FORECAST 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	130	95	125	91	125	91	110	80	110	80	140	102	137.7	100	125
BOYSEN	500	94	450	84	450	84	300	56	300	56	600	112	749.6	140	250
BUFFALO BILL	750	111	700	103	700	103	550	81	500	74	650	96	696.4	103	127

Averages are based on the 1985-2014 period

TABLE WYT3
WY 2015 PRECIPITATION IN INCHES AND PERCENT OF AVERAGE

BASIN	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP	
	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%	IN.	%
VALLEY PRECIPITATION [1]																								
BUFFALO BILL																								
MONTHLY PRECIP AND % OF AVERAGE	1.01	88	1.35	120	1.54	149	0.90	81	0.75	83	0.45	38	0.89	62	3.69	176	1.52	73	0.97	71	1.49	129	1.05	84
YEAR-TO-DATE PRECIP AND % OF AVERAGE	1.01	88	2.36	104	3.90	117	4.80	108	5.55	104	6.00	92	6.89	86	10.58	105	12.10	100	13.07	97	14.56	99	15.61	98
BOYSEN																								
MONTHLY PRECIP AND % OF AVERAGE	0.27	29	0.56	130	0.81	272	0.07	28	1.05	289	0.34	61	1.25	109	4.85	251	1.17	99	1.02	125	0.50	93	0.10	10
YEAR-TO-DATE PRECIP AND % OF AVERAGE	0.27	29	0.83	62	1.64	100	1.71	90	2.76	123	3.10	110	4.35	110	9.20	156	10.37	147	11.39	145	11.89	141	11.99	127
BULL LAKE																								
MONTHLY PRECIP AND % OF AVERAGE	0.27	35	0.73	188	0.69	303	0.06	33	0.92	301	0.28	67	1.09	101	4.81	254	1.51	126	1.37	151	0.72	115	0.11	11
YEAR-TO-DATE PRECIP AND % OF AVERAGE	0.27	35	1.00	85	1.69	120	1.75	110	2.67	141	2.95	127	4.04	119	8.85	168	10.36	160	11.73	159	12.45	155	12.56	139
MOUNTAIN PRECIPITATION [2]																								
BUFFALO BILL																								
MONTHLY PRECIP AND % OF AVERAGE	1.50	63	4.20	114	3.50	113	2.90	97	2.30	92	1.40	50	2.60	76	4.90	129	2.10	70	2.50	114	1.30	81	1.40	64
YEAR-TO-DATE PRECIP AND % OF AVERAGE	1.50	63	5.70	93	9.20	100	12.10	99	14.40	98	15.80	90	18.40	88	23.30	94	25.40	92	27.90	93	29.20	93	30.60	91
BOYSEN																								
MONTHLY PRECIP AND % OF AVERAGE	1.20	57	3.20	107	2.60	104	1.50	60	2.00	91	1.30	45	2.90	83	5.90	174	1.50	63	2.40	141	0.80	57	1.10	55
YEAR-TO-DATE PRECIP AND % OF AVERAGE	1.20	57	4.40	86	7.00	92	8.50	84	10.50	85	11.80	78	14.70	79	20.60	93	22.10	90	24.50	94	25.30	92	26.40	89
BULL LAKE																								
MONTHLY PRECIP AND % OF AVERAGE	1.20	60	2.10	95	2.10	124	0.80	50	1.20	75	0.70	29	3.00	94	5.80	171	1.50	65	2.30	153	1.00	71	0.90	47
YEAR-TO-DATE PRECIP AND % OF AVERAGE	1.20	60	3.30	79	5.40	92	6.20	83	7.40	81	8.10	70	11.10	76	16.90	93	18.40	90	20.70	95	21.70	93	22.60	90

[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 1985-2014 period
Averages for Mountain Precipitation are based on the 1981-2010 period

FLOOD BENEFITS

Flood Damage Prevented in the Wind/Bighorn and Shoshone River Systems[1]					
Reservoir	**Local**	**Main Stem**	**2015 Total**	**Previous Accumulation[3]**	**1950 - 2015 Accumulation Total**
Bull Lake[2]	$ 101,200	$ 0	$ 101,200	$ 3,378,600	$ 3,479,800
Boysen	$ 278,800	$ 2,889,800	$ 3,168,600	$118,855,500[4]	$122,024,100
Buffalo Bill[2]	$ 1,156,700	$ 0	$ 1,156,700	$ 30,502,400	$31,659,100

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 - 2015.
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.
4/ In 2012, flood damages prevented in 2011 at Boysen Reservoir were revised. The accumulated total for Boysen Reservoir has been corrected to reflect the revision

UNIT OPERATIONAL SUMMARIES FOR WATER YEAR 2015

Riverton Unit

The Riverton Project was reauthorized as the Riverton Unit 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 is located on Bull Lake Creek, a tributary of the Wind River near Crowheart, Wyoming. Bull Lake has an active capacity of 151,737 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.

At the start of WY 2015, Bull Lake held 104,768 AF of water at an elevation of 5788.88 feet. This was 140 percent of average and 69 percent of capacity. Diversion into the Wyoming Canal was discontinued on October 3, 2014 marking the end of the 2014 irrigation season on the Riverton Unit. Releases from Bull Lake remained above 100 cfs during the first half of the month to keep the reservoir level from rising.

During WY 2014, 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 WY 2015 at a higher content. October 2014 inflow was 157 percent of average, and with above average reservoir storage heading into the winter, Bull Lake releases averaged 150 cfs during the month. At the end of October 2014, releases from the dam were down to about 55 cfs, storage in Bull Lake was 104,385 AF, and the water surface elevation was 5788.74 feet. November and December 2014 inflow continued to exceed average and releases were adjusted to maintain a stable reservoir. At the end of December 2014 storage in Bull Lake was 105,844 AF, which was 139 percent of average.

On January 1, 2015, snowpack in the basin above Bull Lake was 92 percent of average. Water supply forecasts of the April-July 2015 snowmelt runoff were prepared each month, beginning in January 2015 and continuing through June 2015. The January 2015 forecast indicated the April-July 2015 snowmelt runoff would be approximately 130,000 AF, which was 95 percent of average. Inflow during January 2015 was 175 percent of average and the release from the dam of about 55 cfs closely matched the inflow. Precipitation in the Wind River valley was 33 percent of average and the mountains above Bull Lake received less than average snowfall during January 2015, causing the snowpack to fall to 80 percent of average on February 1, 2015. The February 1, 2015 snowmelt runoff forecast was lowered to 125,000 AF. Inflow during February 2015 continued to be well above average and at the end of the month the reservoir held 105,955 AF of water. February 2015 precipitation was well above average in the Wind River valley, but the mountains above Bull Lake only reported a slight gain,

with the snowpack increasing to 83 percent of average on March 1, 2015. The March 1, 2015 snowmelt runoff forecast remained at 125,000 AF.

March 2015 was warmer and drier than normal, with above average inflows and above average releases. Bull Lake Reservoir remained almost constant through the month, holding 105,871 AF on March 31, 2015. The warm, dry weather took a toll on the snowpack as the peak snow water equivalent for the year occurred on March 14, 2015 at 7.27 inches. This was almost a month earlier and three inches less than normal. On April 1, 2015 the snowpack was 53 percent of average, a 30 percent drop from March 1, 2015. The April 1, 2015 forecast was lowered to 110,000 AF, which was 80 percent of average. Midvale began diverting water into the Wyoming Canal on April 3, 2015 to flush the canal system and finish filling Pilot Butte. Inflow to Bull Lake during April 2015 was 167 percent of average and began to increase from snowmelt runoff around the middle of the month. Releases were maintained near 50 cfs and reservoir storage began to increase. On April 30, 2015 Bull Lake held 109,316 AF of water at an elevation of 5790.52 feet. The snowpack on May 1, 2015 was 48 percent of average and the May 1, 2015 forecast remained at 110,000 AF.

The weather pattern made a significant shift beginning on May 4, 2015 as widespread rainfall moved into Wyoming, where it remained for the rest of the month. The weather station at Diversion Dam reported the highest May precipitation of record and the Burris weather station recorded measureable precipitation on 24 days during the month. Irrigation demand was ramping up about the same time it started raining, but fell off quickly as rainfall satisfied demand. With no need for irrigation water, the Bull Lake release remained near 50 cfs through the month. May 2015 inflows were slightly above average and Bull Lake storage at the end of May 2015 was 134,881 AF at an elevation of 5799.31 feet.

By June 1, 2015 the snowpack had climbed back to 88 percent of average, and with improving conditions in the basin the June 1, 2015 forecast was increased to 140,000 AF, which was 102 percent of average. Inflows rose above 1,000 cfs on June 1, 2015 and remained above 1,000 cfs until June 22, 2015. Releases from the dam were increased beginning on June 2, 2015 to slow the rate of fill, but by June 10, 2015 the lake was less than one-half foot from the top of active conservation and releases were set to match the inflow to prevent the lake from rising further. Releases in excess of 1,000 cfs were made from June 10 through June 21, 2015 with the maximum daily release of 1,905 cfs occurring on June 17, 2015. The maximum inflow for the year of 1,841 cfs also occurred on June 17, 2015. Bull Lake reached its maximum content of 151,075 AF at an elevation of 5804.56 feet on June 16, 2015 and releases were adjusted as necessary to hold the reservoir level above 150,000 AF for as long as possible. June 2015 inflow was 123 percent of average and storage in Bull Lake at the end of June 2015 was 150,477 AF, which was 118 percent of normal.

Bull Lake inflow fell to 63 percent of average during July 2015, but flow in the Wind River was adequate to meet much of Midvale's irrigation demand well into the month. This allowed Midvale to keep Bull Lake within one foot of full until July 24, 2015.

As the available natural flow in the Wind River decreased, the release from Bull Lake was increased to meet Midvale's demand. With inflows to Bull Lake also receding, the reservoir level began to fall at the end of July 2015 and Bull Lake's storage was 145,479 AF at an elevation of 5802.77 feet.

Diversions into the Wyoming Canal increased through the first half of August 2015, peaking at 1,393 cfs on August 17, 2015. Bull Lake storage was called on to meet demands as the available natural flow declined and the reservoir dropped steadily through the month. Irrigation demands remained high during September 2015 and releases from Bull Lake were in the 1,000 cfs range for most of the month. At the end of September 2015, Bull Lake storage was 63,684 AF at an elevation of 5772.68 feet, which was 84 percent of average.

April-July 2015 inflows totaled 137,668 AF, 100 percent of average. Total inflow to Bull Lake for WY 2015 was 189,462 AF, which was 104 percent of average. The flow of the Wind River above the mouth of Bull Lake Creek during the April-July 2015 period was estimated to be 130 percent of average, totaling 524,170 AF. The total diversion into the Wyoming Canal for the April-September 2015 period was 298,709 AF, 90 percent of average.

Additional hydrologic and statistical information pertaining to Bull Lake operations during 2015 can be found in Table WYT4 and Figure WYG1.

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

Pilot Butte Reservoir began WY 2015 with a storage content of approximately 25,048 AF at an elevation of 5449.74 feet. The 2014 irrigation season on the Riverton Unit ended on October 3, 2014 and diversion into the Wyoming Canal as well as releases from Pilot Canal ended at that time. At the end of the season, Pilot Butte storage was 27,564 AF. This was near the normal end of October content so no additional diversion into Pilot Butte was made following the irrigation season. Once diversions into Pilot Butte were discontinued, the reservoir level began to fall through the winter due to evaporation. By the end of March 2015 the reservoir was 26,738 AF. Diversion into Wyoming Canal resumed on April 3, 2015 to continue filling Pilot Butte and storage increased to 30,101 AF at the end of the month. Precipitation during May 2015 boosted the available natural flow in the Wind River and the rainfall reduced the need for irrigation water. Storage in Pilot Butte peaked at 30,504 AF and an elevation of 5456.35 feet on May 11, 2015 and remained stable through the end of the month. Natural flow in the Wind River was adequate to meet irrigation demand through the month of June and well into July 2015 and Pilot Butte content was held around 30,000 AF through mid July 2015. As the summer progressed and river flows declined, Pilot Butte storage was

needed and the reservoir was drawn down to 21,103 AF on July 31, 2015. Storage use continued during August and September 2015, with the reservoir content falling to 16,126 AF at the end of August 2015 and at the end of WY 2015 on September 30, 2015 Pilot Butte content was 15,392 AF. This was 87 percent of the average end of September content. The end of September 2015 elevation at Pilot Butte was 5436.10 feet.

Pilot Butte Powerplant was unavailable for service during WY 2015 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.

Hydrologic and statistical information can be found in Table WYT5 and Figure WYG2.

TABLE WYT4
HYDROLOGIC DATA FOR WY 2015
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	5788.88	104,768	OCT 01, 2014
END OF YEAR	5772.68	63,684	SEP 30, 2015
ANNUAL LOW	5772.19	62,553	SEP 25, 2015
HISTORIC LOW*	5743.03	6,228	MAR 31, 1950
ANNUAL HIGH	5804.56	151,075	JUN 16, 2015
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)	189,462	OCT 14-SEP 15	230,558	OCT 14-SEP 15
DAILY PEAK (cfs)	1,841	JUN 17, 2015	1,905	JUN 17, 2015
DAILY MINIMUM (cfs)	13	NOV 12, 2014	29	SEP 28, 2015
PEAK SPILLWAY FLOW (cfs)			0	
TOTAL SPILLWAY FLOW (AF)			0	

	INFLOW		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	8.8	158	9.2	167	104.4	139
NOVEMBER	3.3	106	2.9	121	104.8	138
DECEMBER	4.0	168	2.9	155	105.8	139
JANUARY	3.5	176	3.4	179	106.0	139
FEBRUARY	3.2	202	3.2	202	106.0	139
MARCH	3.0	169	3.1	174	105.9	139
APRIL	6.5	166	3.0	82	109.3	143
MAY	28.9	102	3.3	24	134.9	149
JUNE	73.7	123	58.1	249	150.5	118
JULY	28.6	63	33.6	78	145.5	112
AUGUST	15.3	79	59.9	127	100.9	99
SEPTEMBER	10.6	114	47.8	134	63.7	84
ANNUAL	189.5	104	230.6	127		

APRIL - JULY INFLOW (AF)	
ACTUAL	AVERAGE
137-668	137-300

* Average for the 1985-2014 period

FIGURE WYG1

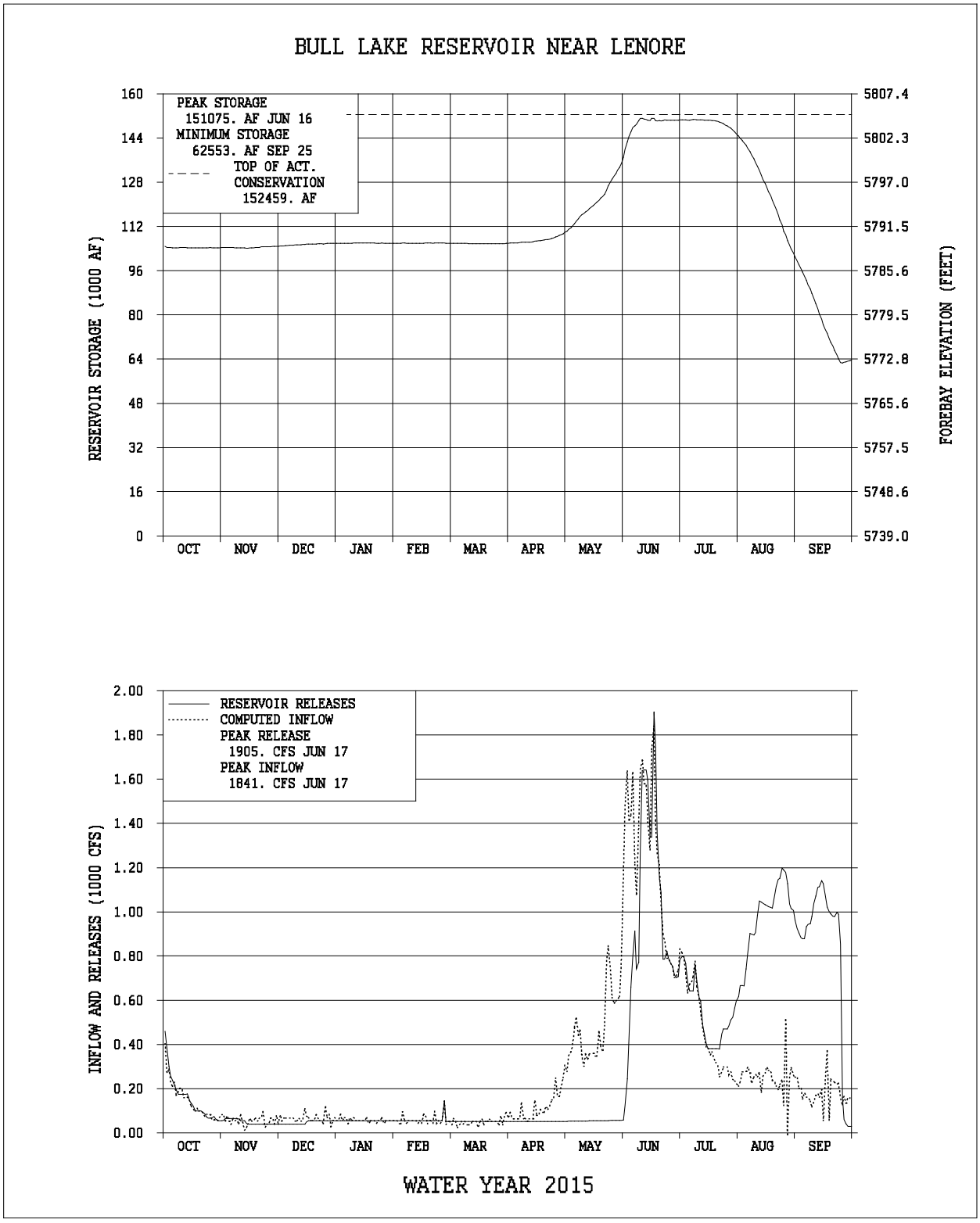

BULL LAKE RESERVOIR NEAR LENORE
PEAK STORAGE
151075. AF JUN 16
MINIMUM STORAGE
62553. AF SEP 25
TOP OF ACT.
CONSERVATION
152459. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
160
144
128
112
96
80
64
48
32
16
0
5807.4
5802.3
5797.0
5791.5
5785.6
5779.5
5772.8
5765.6
5757.5
5748.6
5739.0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
1905. CFS JUN 17
PEAK INFLOW
1841. CFS JUN 17
INFLOW AND RELEASES (1000 CFS)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
WATER YEAR 2015

TABLE WYT5
HYDROLOGIC DATA FOR WY 2015
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	5449.74	25,048	OCT 01, 2014
END OF YEAR	5436.10	15,392	SEP 30, 2015
ANNUAL LOW	5435.71	15,148	SEP 24, 2015
HISTORIC LOW	5409.80	3,748	DEC 01, 2006
ANNUAL HIGH	5456.35	30,504	MAY 11, 2015
HISTORIC HIGH	5460.60	37,465	APR 20, 1988

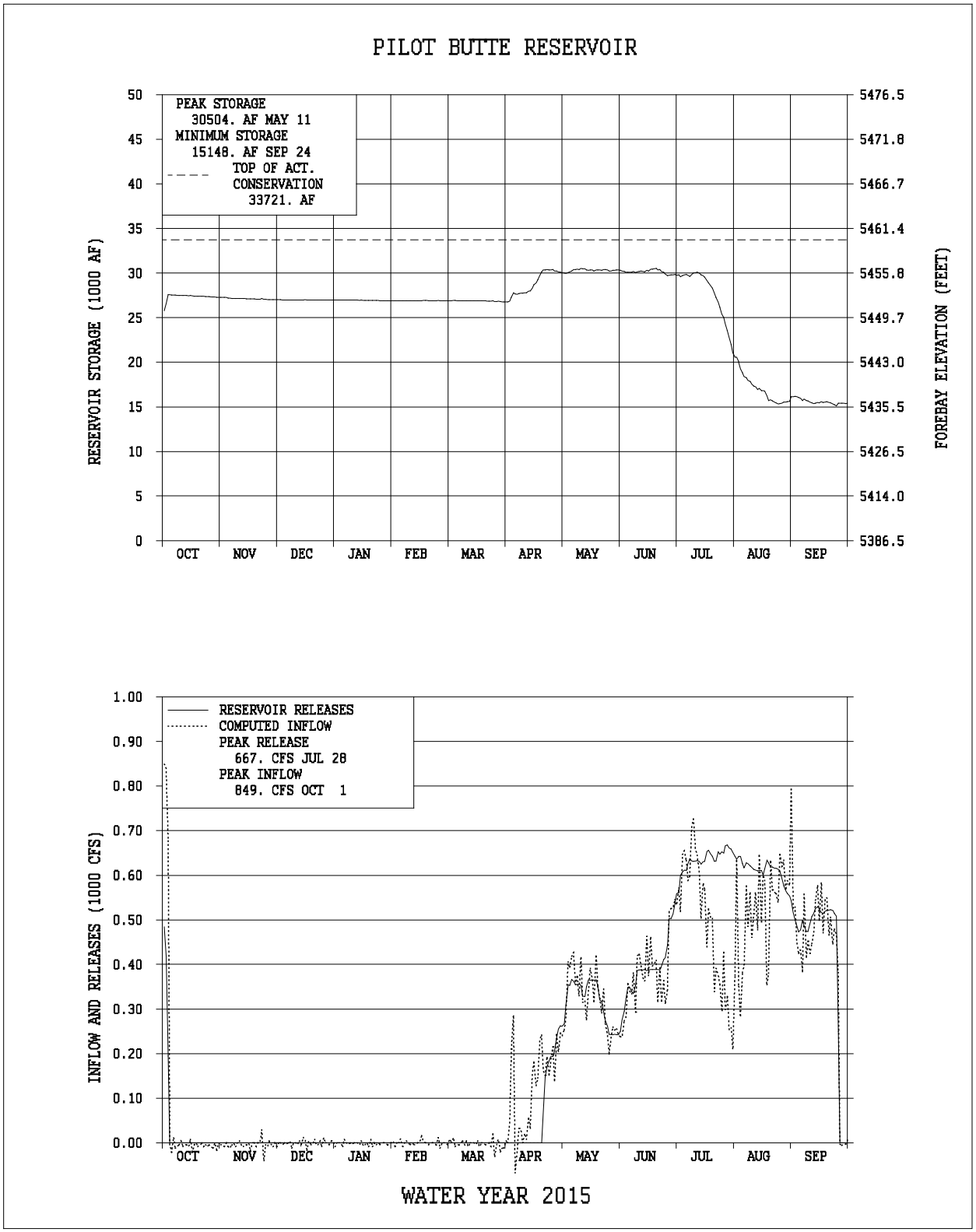
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	139,799	OCT 14-SEP 15	149,455	OCT 14-SEP 15
DAILY PEAK (cfs)	849	OCT 01, 2015	667	JUL 28, 2015
DAILY MINIMUM (cfs)	0	WINTER MONTHS	0	WINTER MONTHS
PEAK SPILLWAY FLOW (cfs)			0	
TOTAL SPILLWAY FLOW (AF)			0	

	INFLOW*		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg**	KAF	% of Avg**	KAF	% of Avg**
OCTOBER	4.4	36	2.2	95	27.3	99
NOVEMBER	-0.3	N/A	0.0	N/A	27.0	95
DECEMBER	0.0	N/A	0.0	N/A	27.0	95
JANUARY	-0.1	N/A	0.0	N/A	26.9	94
FEBRUARY	0.0	N/A	0.0	N/A	26.9	94
MARCH	-0.2	N/A	0.0	N/A	26.7	91
APRIL	7.2	107	3.8	63	30.1	100
MAY	19.7	83	19.4	71	30.3	116
JUNE	22.5	62	23.1	69	29.8	101
JULY	30.2	77	38.9	88	21.1	85
AUGUST	32.5	102	37.5	104	16.1	78
SEPTEMBER	23.8	102	24.6	94	15.4	87
ANNUAL	139.8	79	149.5	85		

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

** Average for the 1985-2014 period.

FIGURE WYG2


PILOT BUTTE RESERVOIR
PEAK STORAGE
30504. AF MAY 11
MINIMUM STORAGE
15148. AF SEP 24
TOP OF ACT.
CONSERVATION
33721. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
50
45
40
35
30
25
20
15
10
5
0
5476.5
5471.8
5466.7
5461.4
5455.8
5449.7
5443.0
5435.5
5426.5
5414.0
5386.5
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
667. CFS JUL 28
PEAK INFLOW
849. CFS OCT 1
INFLOW AND RELEASES (1000 CFS)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
WATER YEAR 2015

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 an elevation of 4717.00 feet and an elevation of 4725.00 feet, which is the top of the spillway gates when closed. The exclusive flood control space is located between an elevation of 4725.00 feet and an elevation of 4732.20 feet. When the reservoir rises above an elevation of 4724.50 feet, the spillway gates must be partially opened to maintain one half foot 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 Irrigation District, Lower Hanover Canal Association, Bighorn Canal Irrigation District, and Hanover Irrigation District utilizing temporary water service contracts.

WY 2015 began with 666,779 AF of water stored in Boysen Reservoir, which was 115 percent of the 30 year average. The corresponding reservoir elevation of 4721.03 feet was 3.97 feet below the top of the joint use pool. The winter release was set on October 2, 2014, when the release from the dam was reduced to 950 cfs. On October 12, 2014 the release from Boysen was cut to 450 cfs to facilitate repairs by Kirby Ditch Irrigation District to their diversion dam. Upon completion of the work in the river on October 17, 2014 the winter release was resumed. After consulting with Wyoming Game and Fish, the winter release was set at 925 cfs on October 24, 2014 with the additional stored water to be used to provide a flushing flow in March 2015. October 2014 inflow was well above average and reservoir storage increased to 695,085 AF at the end of the month. Inflow during November and December 2014 was also above average, but the release exceeded the inflow and at the end of the year Boysen held 682,292 AF of water at an elevation of 4721.88 feet. Reservoir storage at the end of December 2014 was 120 percent of average.

Forecasts of April-July 2015 snowmelt runoff were prepared at the beginning of each month starting in January 2015 and continuing through June 2015. On January 1, 2015 the snowpack in the mountains above Boysen was 97 percent of average and the forecast indicated approximately 500,000 AF of water, 94 percent of average, would enter Boysen Reservoir during the April to July 2015 snowmelt runoff period. January 2015 inflow was above average but precipitation during January 2015 was only 28 percent of average at lower elevations and 60 percent of average in the mountains. The snowpack dropped 14 percent to 83 percent of average on

February 1, 2015 and the forecast was lowered to 450,000 AF, which was 84 percent of average. February 2015 precipitation in the Wind River valley was almost 300 percent of normal, but snowfall in the mountains was only 91 percent of average. Reservoir inflow continued to be above average in February 2015, as were releases and at the end of the month Boysen content decreased to 667,141 AF at an elevation of 4721.05 feet. The snowpack increased to 87 percent of average on March 1, 2015 and the forecast of April-July 2015 runoff remained at 450,000 AF.

March 2015 was warmer and drier than normal in the Wind River basin with most of the month's precipitation occurring between March 1 and March 4, 2015. The snowpack peaked on March 14, 2015 which was about a month earlier than normal. Releases from Boysen were maintained at 925 cfs until the early morning of March 24, 2015 when the outflow was increased 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. Beginning at 2:00 a.m. on the morning of March 24, 2015 the release from Boysen Dam was increased from 925 cfs to 3,000 cfs. This was followed by an increase from 3,000 cfs to 5,000 cfs five hours later. The 5,000 cfs release was maintained for ten hours and then gradually reduced to 925 cfs where it remained through the end of the month. During the flushing flow, approximately 5,930 AF of water was released above the 925 cfs winter release. The outflow continued to exceed inflow during March 2015 and content in the reservoir decreased by about 7,400 AF to 659,761 AF at the end of the month. The end of March 2015 water surface elevation was 4720.64 feet. On April 1, 2015 the snowpack in the Boysen watershed was 67 percent of average. This was a 20 percent decrease from March 1, 2015 when compared to average, and the April 1, 2015 snowmelt runoff forecast was decreased to 300,000 AF, which was 56 percent of average.

Little precipitation fell on the irrigated lands below Boysen during the first half of April 2015, but the 925 cfs release from the dam was adequate to meet the early season needs of the irrigators. The snowpack continued to deteriorate and Boysen releases were closely monitored as the irrigation demand began to increase during the last week of April 2015. By the end of the month, releases of 1,100 cfs were needed. On May 1, 2015 the snowpack was down to 56 percent of average and the May 1, 2015 forecast of April-July 2015 runoff remained at 300,000 AF. On the positive side, even with the 925 cfs winter release, inflows through the winter were well above average and Boysen storage levels were the highest of record from December through the end of April. On April 30, 2015 Boysen content was 647,476 AF at an elevation of 4719.95 feet. This was 122 percent of the normal end of April content.

As stormy weather moved into Wyoming in early May 2015, rainfall helped reduce the need for irrigation. With the expectation of well below average runoff, the release from Boysen was stepped down accordingly and by May 8, 2015 releases were back down to 930 cfs. Widespread rain continued to fall, keeping irrigation demands low while causing inflows to the reservoir to steadily increase. Since storage in the reservoir was well above average, releases to control the rate of fill were initiated on May 19, 2015. As the rain kept falling, inflows quickly jumped above 6,000 cfs on May 24, 2015. To stay ahead of the rising inflow, releases above powerplant capacity through the hollow-jet valves were initiated on May 24, 2015 and the spillway gates were opened on May 25, 2015 to provide a release of 4,300 cfs. Inflows hovered around

6,000 cfs for the remainder of the month and with the reservoir level about a foot from entering the flood pool, releases were increased to 5,000 cfs on May 29, 2015 and then to 5,500 cfs on June 1, 2015. May 2015 was unusually wet and the weather station at Worland, which is in the irrigated area below the dam, received almost three times normal rainfall for the month with measurable precipitation on 23 of the 31 days in May 2015. Precipitation above Boysen was about 250 percent of average for May 2015, with most of the lower elevation stations receiving between five and six inches of rain while snow fell in the mountains. Boysen inflow during May 2015 was 192,060 AF, which was 168 percent of average and almost two-thirds of what was forecasted as April through July runoff on May 1, 2015. Inflows rose above 7,000 cfs on June 1, 2015 and continued to climb as all the runoff from rain in the basin flowed into the reservoir.

Precipitation continued to fall during the first week of June 2015, but as scattered thunderstorms rather than widespread showers. Temperatures also warmed in early June 2015 and snowmelt combined with the continuing rainfall runoff. Inflow in excess of 8,000 cfs occurred from June 2 through June 18, 2015 with a peak of 10,831 cfs on June 12, 2015. With inflow exceeding the outflow, the reservoir rose into the flood pool on June 4, 2015. Increases to the release from Boysen on June 7 and June 8, 2015 brought the outflow to 7,500 cfs. At the same time, the release from Buffalo Bill Reservoir was about 6,500 cfs. These releases combined with gains below the dams resulted in flows of almost 19,000 cfs entering Bighorn Lake. Boysen continued to rise higher into the flood pool, which required opening the spillway gates further to prevent them from being overtopped. The Corps of Engineers, which has control of the release when the reservoir is in the flood pool, did not want to increase the release above 7,500 cfs due to the high flows already entering Bighorn Lake. On June 12 and again on June 15, 2015 the release through the powerplant was reduced as the spillway gates were opened to maintain the outflow at 7,500 cfs and provide adequate freeboard on the spillway gates. Storage in the reservoir peaked on June 18, 2015 at 808,706 AF and an elevation of 4728.32 feet, which was 67,112 AF and 3.32 feet into the flood pool. This was the highest the reservoir had been since 1991. As inflows fell below 7,500 cfs the lake level began to fall, providing more freeboard on the spillway gates. Releases through the powerplant were increased as spillway releases were reduced, while holding the outflow at 7,500 cfs. On June 24, 2015 the powerplant was operating at capacity and the release was reduced to 7,000 cfs. Further reductions were made through the remainder of the month to provide relief downstream and by June 30, 2015 the outflow was down to about 5,500 cfs. The above average June 2015 inflow was primarily the result of a very rainy May 2015 and totaled 426,967 AF. On June 30, 2015 Boysen content was 748,672 AF at an elevation of 4725.36 feet.

Inflows continued to recede at a fairly rapid rate and the remaining storage in the Boysen flood pool was evacuated by July 2, 2015. With Boysen out of the flood pool, releases were reduced to about 3,500 cfs. This release was still substantially higher than the inflow and the lake level continued to decline. By July 5, 2015 the reservoir was below an elevation of 4724.50 feet and falling. This provided adequate freeboard on the spillway gates and they were closed on July 6. 2015. The hollow-jet valves were closed on July 15, 2015 which reduced the release to the maximum capacity of the generating units. Additional reductions to the release were made as inflows continued to decrease and by the end of July 2015 the release from the dam was down to about 1,300 cfs.

Releases for the remainder of the irrigation season were maintained at a rate that was slightly more than what was needed to meet the irrigation demand.

Actual inflow for the April-July 2015 period totaled 749,625 AF, which was 140 percent of average. Total inflow to Boysen during WY 2015 was 1,143,920 AF, 128 percent of average. The reservoir ended WY 2015 with 4719.01 feet and a content of 631,065 AF. This was 109 percent of the average end of September content and 2.02 feet lower than at the end of September of 2014. The peak inflow for WY 2015 of 10,831 cfs occurred on June 12, 2015 and the maximum daily release of 7,539 cfs was made on June 15, 2015. During WY 2015, Boysen Powerplant generated 65,408,000 kWh of electricity, about 104 percent of average and 6,715,000 kWh more than was generated in 2014. Of the 1,179,633 AF of water released from Boysen in WY 2015, 765,184 AF was discharged through the powerplant and 414,449 AF bypassed the powerplant.

Important Events - 2015

October 12 – October 17, 2014: Reservoir releases were reduced to 450 cfs to facilitate repairs by Kirby Ditch Irrigation District to their diversion dam.

October 24, 2014: Release for the winter was set at 925 cfs.

March 24, 2015: Boysen Reservoir spring water information meeting was held in Worland to discuss the water supply and proposed operation of Boysen Reservoir in 2015.

March 24 – March 25, 2015: Reservoir releases were adjusted as requested by Wyoming Game and Fish to provide a flushing flow in the river below Boysen Dam.

May 25, 2015: Release through the Boysen spillway was initiated.

June 4, 2015: Boysen Reservoir level reached exclusive flood pool elevation of 4725.00 feet.

June 18, 2015: Boysen Reservoir reached its maximum elevation for the year of 4728.32 feet.

July 2, 2015: Boysen Reservoir level fell below exclusive flood pool elevation of 4725.00 feet.

July 6, 2015: Release through the Boysen spillway was discontinued.

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 WY 2015
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	4721.03	666,779	OCT 01, 2014
END OF YEAR	4719.01	631,065	SEP 30, 2015
ANNUAL LOW	4719.01	631,065	SEP 30, 2015
HISTORIC LOW ELEVATION *	4684.18		MAR 18, 1956
HISTORIC LOW CONTENT *		235,737	SEP 24, 2002
ANNUAL HIGH	4728.32	808,706	JUN 18, 2015
HISTORIC HIGH	4730.83	922,406	JUL 06, 1967

*Because storage space in a reservoir is reduced 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)	1,143,920	OCT 14-SEP 15	1,179,633*	OCT 14-SEP 15
DAILY PEAK (cfs)	10,831	JUN 12, 2015	7,539	JUN 15, 2015
DAILY MINIMUM (cfs)	26	SEP 16, 2015	451	OCT 13, 2015
PEAK SPILLWAY FLOW (cfs)			7,358	JUN 18, 2015
TOTAL SPILLWAY FLOW (AF)			361,826	MAY 25-JUL 06

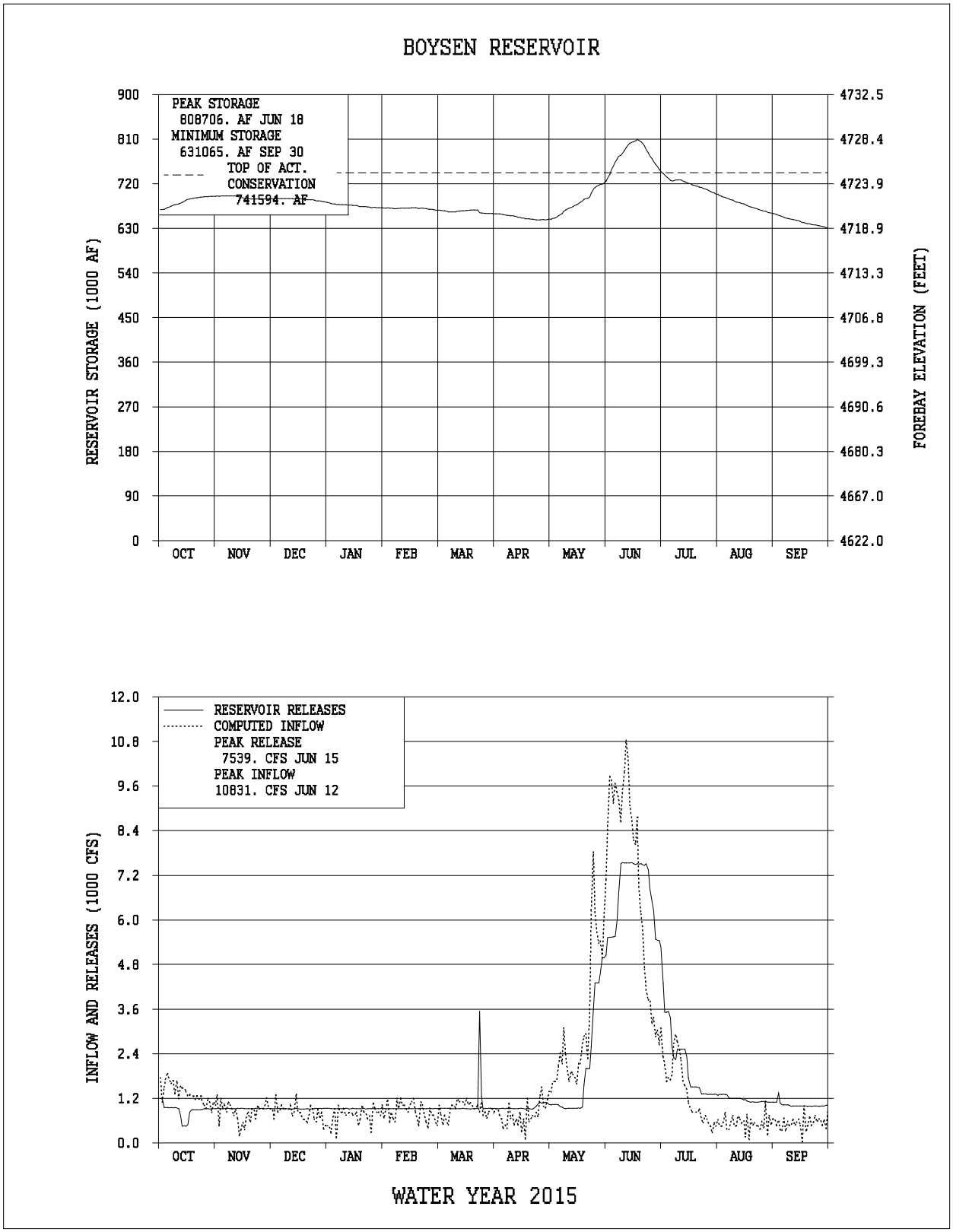
* Of the 1,179,633 AF of water released from Boysen Reservoir, 414,449 AF bypassed the powerplant.

	INFLOW		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	81.9	152	53.6	102	695.1	120
NOVEMBER	49.8	104	55.2	115	689.7	119
DECEMBER	49.3	133	56.7	114	682.3	120
JANUARY	45.7	126	56.9	119	671.1	121
FEBRUARY	47.4	130	51.4	120	667.1	121
MARCH	55.5	107	62.9	116	659.8	121
APRIL	44.9	93	57.1	91	647.5	122
MAY	192.1	168	118.3	118	721.2	132
JUNE	427.0	176	399.5	265	748.7	117
JULY	85.7	67	135.0	98	699.4	111
AUGUST	32.6	64	72.0	85	659.9	111
SEPTEMBER	32.1	67	61.0	93	631.1	109
ANNUAL	1,143.9	128	1,179.6	131		

APRIL - JULY INFLOW (AF)	
ACTUAL	AVERAGE
749,625	533,700

* Average for the 1985-2014 period

FIGURE WYG3


BOYSEN RESERVOIR
PEAK STORAGE
808706. AF JUN 18
MINIMUM STORAGE
631065. AF SEP 30
TOP OF ACT.
CONSERVATION
741594. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
900
810
720
630
540
450
360
270
180
90
0
4732.5
4728.4
4723.9
4718.9
4713.3
4706.8
4699.3
4690.6
4680.3
4667.0
4622.0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
7539. CFS JUN 15
PEAK INFLOW
10831. CFS JUN 12
INFLOW AND RELEASES (1000 CFS)
12.0
10.8
9.6
8.4
7.2
6.0
4.8
3.6
2.4
1.2
0.0
WATER YEAR 2015

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 an elevation of 6415.00 feet. However, when the reservoir rises above an elevation of 6412.80 feet, water flows through a notch in one of the dikes into the sinkhole area. The reservoir is operated not to exceed an elevation of 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 an elevation of 6400.00 feet. Operation above 6400.00 feet will be directed by Wyoming Area Office staff to avoid overtopping of the dikes.

Storage in Anchor Reservoir at the beginning of WY 2015 was 564 AF at an elevation of 6363.64 feet. The reservoir level rose through October 2014 to 820 AF by the end of the month and then fell to 679 AF at the end of November 2014. From December 2014 through March 2015, the reservoir remained fairly stable. Releases for irrigation began on April 9, 2015 and the reservoir level slowly fell until April 27, 2015 when snowmelt runoff began to enter the reservoir. Storage at the end of April 2015 was 537 AF. Irrigation releases outpaced inflow during the first half of May 2015 and the reservoir level dropped, but as rain entered the basin, inflows rose and storage increased to 2,016 AF on May 31, 2015. Rainfall runoff continued to fill the reservoir during June 2015, with the inflow spiking up to 656 cfs on June 4, 2015. As the reservoir level approached an elevation of 6400.00 feet, releases were increased to slow the rate of fill. With releases increased to over 150 cfs on June 12, 2015 the reservoir was still rising and was above an elevation of 6412.80 feet for a period between June 12 and June 14, 2015. As releases peaked at 186 cfs on June 14, 2015 the reservoir level stabilized and releases were adjusted to hold the reservoir level between 6412.00 feet and 6412.80 feet. Anchor Reservoir remained above an elevation of 6412.00 feet through mid-July 2015, with a second bump above 6412.80 feet from July 10 to July 12, 2015. Storage in Anchor Reservoir peaked on July 10, 2015 at 7,621 AF and elevation 6412.99 feet. From that point on, storage was required to meet irrigation demands and the reservoir level steadily dropped to 6406.32 feet and 5,695 AF at the end of July 2015. August 2015 releases averaged 80 cfs and reservoir storage was reduced to 642 AF at the end of August 2015. The reservoir level continued to fall during September 2015 and was at an elevation of 6361.23 feet at the end of WY 2015. The end of September 2015 storage of 461 AF was 136 percent of average.

Hydrologic and statistical data pertaining to Anchor Reservoir operations during 2015 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 WY 2015
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	6363.64	564	OCT 01,2014
END OF YEAR	6361.23	461	SEP 30, 2015
ANNUAL LOW	6360.23	423	MAY 14, 2015
HISTORIC LOW			
ANNUAL HIGH	6412.99	7,621	JUL 10, 2015
HISTORIC HIGH	6418.52	9,252	JUL 03, 1967

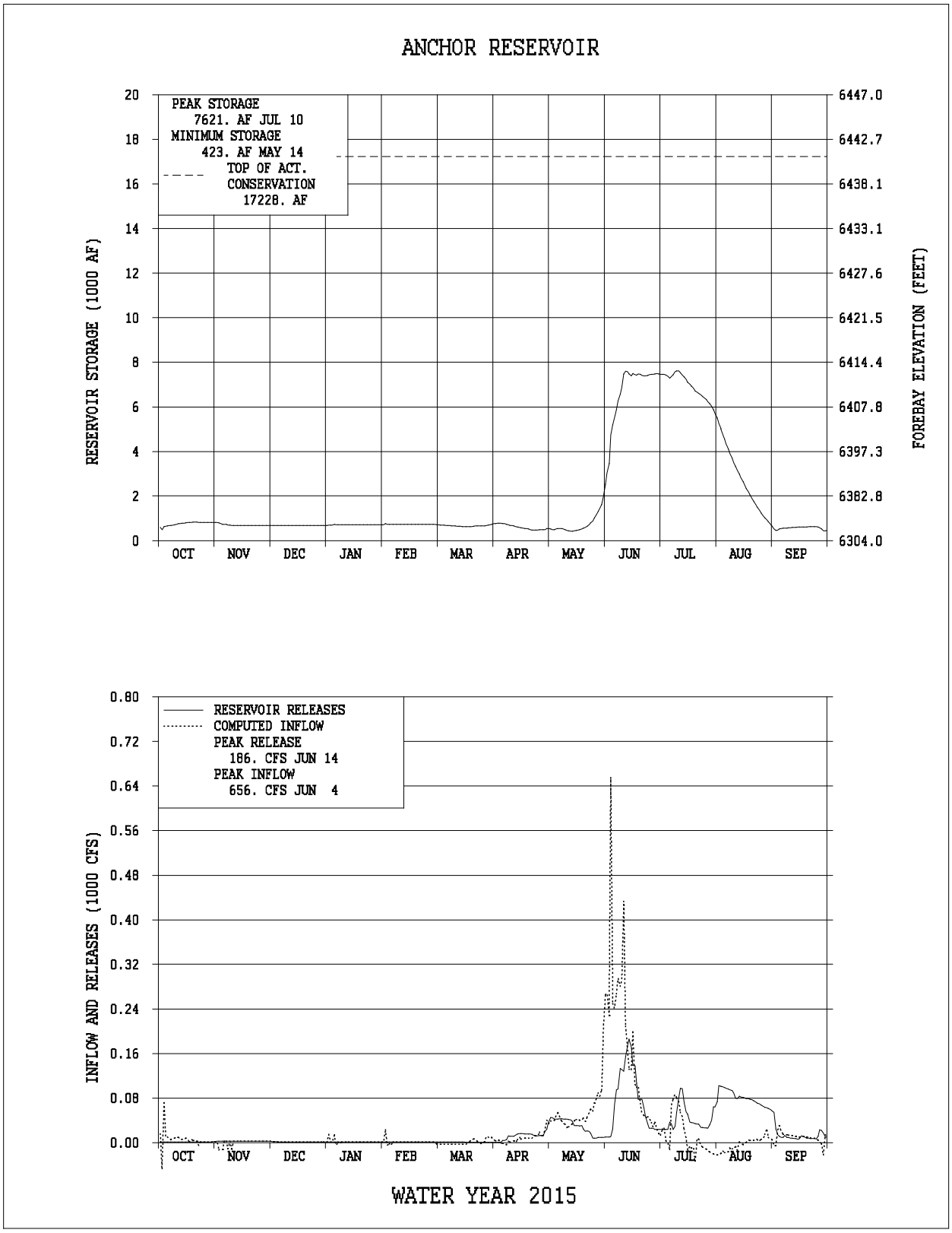
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW *	DATE
ANNUAL TOTAL (AF)	15,729	OCT 14-SEP 15	15,831	OCT 14-SEP 15
DAILY PEAK (cfs)	656	JUN 04, 2015	186	JUN 14, 2015
DAILY MINIMUM (cfs)	0	WINTER MONTHS	0	WINTER MONTHS
PEAK SPILLWAY FLOW (cfs)			0	
TOTAL SPILLWAY FLOW (AF)			0	

* 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 2015, water flowed over the notch in the dike from June 12 to June 14 and July 10 to July 12.

	INFLOW		OUTFLOW*		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	0.3	57	0.1	14	0.8	290
NOVEMBER	0.0	NA	0.1	50	0.7	272
DECEMBER	0.1	48	0.1	48	0.7	279
JANUARY	0.1	102	0.1	64	0.7	300
FEBRUARY	0.1	72	0.1	56	0.7	274
MARCH	0.1	18	0.0	21	0.7	199
APRIL	0.5	79	0.7	137	0.5	111
MAY	3.3	86	1.8	67	2.0	132
JUNE	10.1	150	4.6	92	7.5	230
JULY	0.8	36	2.6	78	5.7	274
AUGUST	0.0	NA	4.9	273	0.6	113
SEPTEMBER	0.6	95	0.8	94	0.5	136
ANNUAL	15.7	98	15.8	101		

* Average is for the 1991-2014 period. This period was used because of the availability of data at Anchor Reservoir.

FIGURE WYG4


ANCHOR RESERVOIR
PEAK STORAGE
7621. AF JUL 10
MINIMUM STORAGE
423. AF MAY 14
TOP OF ACT.
CONSERVATION
17228. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
20
18
16
14
12
10
8
6
4
2
0
6447.0
6442.7
6438.1
6433.1
6427.6
6421.5
6414.4
6407.8
6397.3
6382.8
6304.0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
186. CFS JUN 14
PEAK INFLOW
656. CFS JUN 4
INFLOW AND RELEASES (1000 CFS)
0.80
0.72
0.64
0.56
0.48
0.40
0.32
0.24
0.16
0.08
0.00
WATER YEAR 2015

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.

> **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, an elevation of 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.
>
> **Shoshone Powerplant**, reconstructed as part of the Buffalo Bill Unit P-S MBP, is located on the left bank of the Shoshone River at the toe of Buffalo Bill Dam and releases water directly into the Shoshone River. After 56 years of continuous use, the Shoshone Powerplant became obsolete because of safety problems beyond economical repair. On March 21, 1980, the original plant was taken out of service. In 1992 one of the three generating units was replaced with a new unit having a nameplate capability of 3,000 kW. In accordance with the Buffalo Bill Reservoir Enlargement Winter Release Operation Agreement (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.

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

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

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

Storage in Buffalo Bill Reservoir at the beginning of WY 2015 was 510,193 AF of water at an elevation of 5375.79 feet. This was 114 percent of average and the highest end of September content since 1999. Irrigation releases to the Heart Mountain Canal continued until October 20, 2014, while diversions from the Shoshone River for irrigation ended on October 16, 2014. Inflows during October 2014 were 130 percent of average, and with higher than normal reservoir content, releases of approximately 600 cfs were maintained through the end of the month to reduce storage in the reservoir. On October 31, 2014 the reservoir level was 5369.42 feet. November 2014 inflows continued to be above average and releases were held near 500 cfs for the first part of the month to keep the reservoir elevation below 5370.00 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. As inflows slowed, the release from Buffalo Bill Dam was set at 350 cfs on November 13, 2014. This release was maintained through the winter months and was based on the criteria in the Agreement**.** On November 30, 2014 the water surface elevation of Buffalo Bill was 5369.31 feet. December 2014 inflow was 150 percent of average, but only slightly more than the release and the reservoir held 464,253 AF at an elevation of 5369.46 feet on December 31, 2014.

Forecasts of the April-July 2015 snowmelt runoff are made each month beginning in January 2015 and continuing through June 2015 for Buffalo Bill Reservoir. Conditions on January 1, 2015 indicated that 750,000 AF of runoff could be expected to flow into Buffalo Bill Reservoir during the April-July 2015 period, which was 111 percent of the 30 year average.

January 2015 inflow to Buffalo Bill continued at about 150 percent of average, but was a little less than the release from the dam and at the end of the month storage in the reservoir stood at 463,542 AF of water at an elevation of 5369.36 feet. Precipitation in the Buffalo Bill watershed was less than average during January 2015 and snowpack accumulation was slightly below average. The February 1, 2015 snowmelt runoff forecast was reduced to 700,000 AF with snowpack in the basin at 103 percent of average on February 1, 2015.

The mild winter weather continued to cover the Buffalo Bill watershed during February 2015 with little precipitation occurring after February 10, 2015. Precipitation at lower elevation weather stations was 83 percent of average for February 2015 with the mountains receiving 92 percent of average moisture for the month. Inflow during February 2015 closely matched the release from the dam and the reservoir level remained almost constant through the month. The March 1, 2015 snowpack in the mountains above Buffalo Bill was down four percent compared to the previous month and stood at 98 percent of average. The forecast prepared on March 1, 2015 remained at 700,000 AF.

The drier weather pattern that emerged during the last half of February carried forward into March 2015. The Absaroka Mountains received 50 percent of normal precipitation while weather stations in the river valley reported only 38 percent of average moisture. Temperatures were about five degrees Fahrenheit warmer than normal, prompting an early start to the snowmelt runoff. March 2015 inflow was almost twice the average and the snowpack peaked on March 13, 2015 over a month earlier than normal. At the end of March 2015, storage in Buffalo Bill was 478,171 AF at an elevation of 5371.42 feet. The snowpack dropped 26 percent during March 2015 when compared to average, and stood at 72 percent of average on April 1, 2015. As a result of the rapidly declining snowpack, the April 1, 2015 forecast of April-July 2015 runoff was decreased to 550,000 AF, which was 81 percent of average.

The 350 cfs winter release to the Shoshone River was maintained until April 12, 2015 when higher releases were required to meet the demands of project irrigators. Heart Mountain Canal deliveries began on April 13, 2015. With below average runoff expected, the control of the release to the Shoshone River was turned over to the Shoshone Irrigation District and releases were adjusted at their direction to meet irrigation demands. Little precipitation fell during the first half of April 2015 and inflows to the reservoir decreased through that period. Snowfall and rain finally returned to the basin on April 15, 2015 as a storm front dropped almost two feet of snow in the mountains. A second storm brought additional moisture around April 25, 2015 but precipitation for the month was only 62 percent of average at lower elevations and 76 percent of average in the mountains. April 2015 inflow was 167 percent of average and the reservoir rose to 497,425 AF by the end of the month. With the May 1, 2015 snowpack at 67 percent of average and falling, the May 1, 2015 forecast was reduced by 50,000 AF to 500,000 AF of runoff expected during the April-July 2015 period. This forecast was 74 percent of average.

Just after the May 1, 2015 forecast was finalized, rain moved in to the Shoshone drainage and it continued to rain for the rest of the month. The weather station at Pahaska, on the North Fork of the Shoshone River recorded measurable precipitation on 22 days in May 2015. At higher elevations, the snowpack that had been melting out began to build again. The irrigated lands below the dam also received well above average precipitation and the need for irrigation water

decreased through the month. With reservoir releases being reduced and inflows increasing in response to the rainfall runoff, storage in Buffalo Bill increased to 566,867 AF on May 31, 2015. Warmer temperatures during the last week of the month resulted in additional inflow to the reservoir from snowmelt runoff as well. To slow the rate of fill in the reservoir, Reclamation took back the control of releases from the irrigation district on May 25, 2015 and began stepping up the release to the river. In years when the April-July runoff is expected to be average or greater, some of the storage in the reservoir is evacuated in the spring to make room for the anticipated period of high inflow. Going into the month of May 2015, Reclamation was preparing for a well below average inflow year and all inflow above the required release was stored. This resulted in less space in the reservoir to hold the unexpectedly high inflows that occurred during the first half of June 2015. By May 31, 2015 the reservoir was rising over one foot per day, with inflows above 6,700 cfs. The total release from the dam was about 2,900 cfs, with the Heart Mountain Canal only diverting about 450 cfs and about 2,450 cfs released to the river.

As inflows jumped to 8,700 cfs on June 2, 2015 multiple increases were made to the river release on June 1 and June 2, 2015. By the evening of June 2, 2015 the spillway gates were opened and the flow at the Cody river gage was up to 5,000 cfs. Inflows dropped for a few days, but still averaged about 7,900 cfs over the first week of June 2015. By June 9, 2015 there was less than four feet of vacant space remaining in Buffalo Bill and inflows were back on the rise. Beginning on June 9, 2015 the flow at the Cody gage was increased in 500 cfs increments to 6,500 cfs by early on the morning of June 10, 2015 and Heart Mountain Canal demands were beginning to pick up at the same time, resulting in a total release from the dam of about 7,200 cfs. The peak inflow for the year of 10,002 cfs came a day later on June 11, 2015 before inflows began to subside. Provisional data from the U.S. Geological Survey shows that the inflow on the North Fork of the Shoshone River peaked at 5,340 cfs on June 2, 2015 and the peak on the South Fork of 4,390 cfs occurred on June 11, 2015. With total releases held near 7,200 cfs, the reservoir level peaked at an elevation of 5391.80 feet on June 13, 2015. On June 18, 2015 Reclamation began decreasing the release from the dam as inflows declined and the spillway gates were closed on June 22, 2015. Once the runoff was over, inflows dropped fairly quickly and releases were reduced to provide relief downstream in Bighorn Lake, which was storing water in its flood pool, and to conserve storage in the lake. At the end of June 2015 the reservoir level was at an elevation of 5391.58 feet, which was slightly less than two feet from full, and the end of month content of 631,075 AF was 110 percent of average. June 2015 inflow of 363,188 AF was 120 percent of average.

Buffalo Bill inflow continued to fall during July 2015 and conditions were such that the control of the release to the river could be returned to the Shoshone Irrigation District on July 6, 2015. A release of about 1,100 cfs was adequate to meet the needs of irrigators diverting from the Shoshone River and Heart Mountain Canal demands were almost constant through the month at about 850 cfs. The average daily inflow was about 750 cfs less than the outflow during July 2015 and storage in the reservoir steadily fell through the month. At the end of July 2015, Buffalo Bill Reservoir held 584,382 AF of water at an elevation of 5385.65 feet. This was 101 percent of the average end of July content, while July 2015 inflows were 46 percent of average. Releases during August and September 2015 were near normal but inflows were just 55 and 63 percent of average in those months, respectively. At the end of WY 2015, storage in Buffalo Bill

Reservoir was 430,804 AF at an elevation of 5364.67 feet, which was 96 percent of average. Reservoir storage was heavily relied on to meet irrigation demands during July, August, and September 2015 and without the increased storage due to the rain that fell in May 2015, carryover storage in Buffalo Bill would have been substantially lower. The total inflow to Buffalo Bill during the April-July 2015 runoff period was 696,350 AF, which was 103 percent of average. The total WY 2015 inflow of 892,902 AF was 105 percent of average.

Total energy generated at all powerplants that directly receive water out of Buffalo Bill Reservoir totaled 124,023,000 kWh in 2015. Of this total amount, Heart Mountain Powerplant generated 18,308,000 kWh, Buffalo Bill Powerplant generated 67,601,000 kWh, Shoshone Powerplant generated 19,270,000 kWh and Spirit Mountain Powerplant generated 18,844,000 kWh. The powerplants used 648,916 AF of water to generate this amount of energy and 67 percent of the total water released from Buffalo Bill Reservoir during WY 2015 was used for generation. About 25 percent, or 247,192 AF of the total water released from Buffalo Bill Reservoir, was released to the Heart Mountain Canal for irrigation purposes.

Important Events - 2015

October 16, 2014: Irrigation diversions from the Shoshone River were discontinued for the 2014 irrigation season.

October 20, 2014: Irrigation diversions to the Heart Mountain Canal were discontinued for the 2014 irrigation season.

November 13, 2014: Releases to the Shoshone River were reduced to the winter release of 350 cfs.

March 24, 2015: Buffalo Bill Reservoir Public Information meeting was held in Powell to discuss WY 2014 operation and expected 2015 operation.

April 12, 2015: Irrigation diversions from the Shoshone River by Shoshone Project irrigation districts were initiated for the 2015 irrigation season.

April 13, 2015: Irrigation releases to the Heart Mountain Canal were initiated for the 2015 irrigation season.

June 2, 2015: Releases through the spillway at Buffalo Bill Dam were initiated.

June 13, 2015: Buffalo Bill Reservoir reached a maximum elevation for WY 2015 of 5391.80 feet.

June 22, 2015: Releases through the spillway at Buffalo Bill Dam were discontinued.

July 6, 2015: The control of the release from Buffalo Bill Dam was turned over to the Shoshone Irrigation District and releases were adjusted as necessary to meet irrigation demands.

Additional hydrologic and statistical information pertaining to the operations of Buffalo Bill Reservoir during WY 2015 can be found in Table WYT8 and Figure WYG5.

TABLE WYT8
HYDROLOGIC DATA FOR WY 2015
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	5375.59	510,193	OCT 01,2014
END OF YEAR	5364.67	430,804	SEP 30, 2015
ANNUAL LOW	5364.67	430,804	SEP 30, 2015
HISTORIC LOW*		19,080	JAN 31, 1941
ANNUAL HIGH	5391.80	632,953	JUN 13, 2015
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)	892,902	OCT 14-SEP 15	972,298	OCT 14-SEP 15
DAILY PEAK (cfs)	10,002	JUN 11, 2015	6,406	JUN 13, 2015
DAILY MINIMUM (cfs)	33	DEC 28, 2014	337	NOV 19, 2014
PEAK SPILLWAY FLOW (cfs)				
TOTAL SPILLWAY FLOW (AF)				

*Daily peak and minimum are releases to the river

	INFLOW		OUTFLOW		CONTENT	
MONTH	KAF	% of Avg*	KAF	% of Avg*	KAF	% of Avg*
OCTOBER	32.6	130	78.8	219	464.0	109
NOVEMBER	23.4	111	24.3	140	463.1	108
DECEMBER	23.1	150	22.0	133	464.3	109
JANUARY	21.1	146	21.8	138	463.5	109
FEBRUARY	18.9	150	20.2	131	462.3	110
MARCH	38.2	196	22.3	109	478.2	115
APRIL	73.0	167	53.7	92	497.4	126
MAY	185.5	111	116.0	94	566.9	128
JUNE	363.2	120	299.0	168	631.1	110
JULY	74.7	46	121.4	71	584.4	101
AUGUST	23.7	55	108.4	97	499.7	98
SEPTEMBER	15.5	63	84.4	101	430.8	96
ANNUAL	892.9	105	972.3	115		

FIGURE WYG5

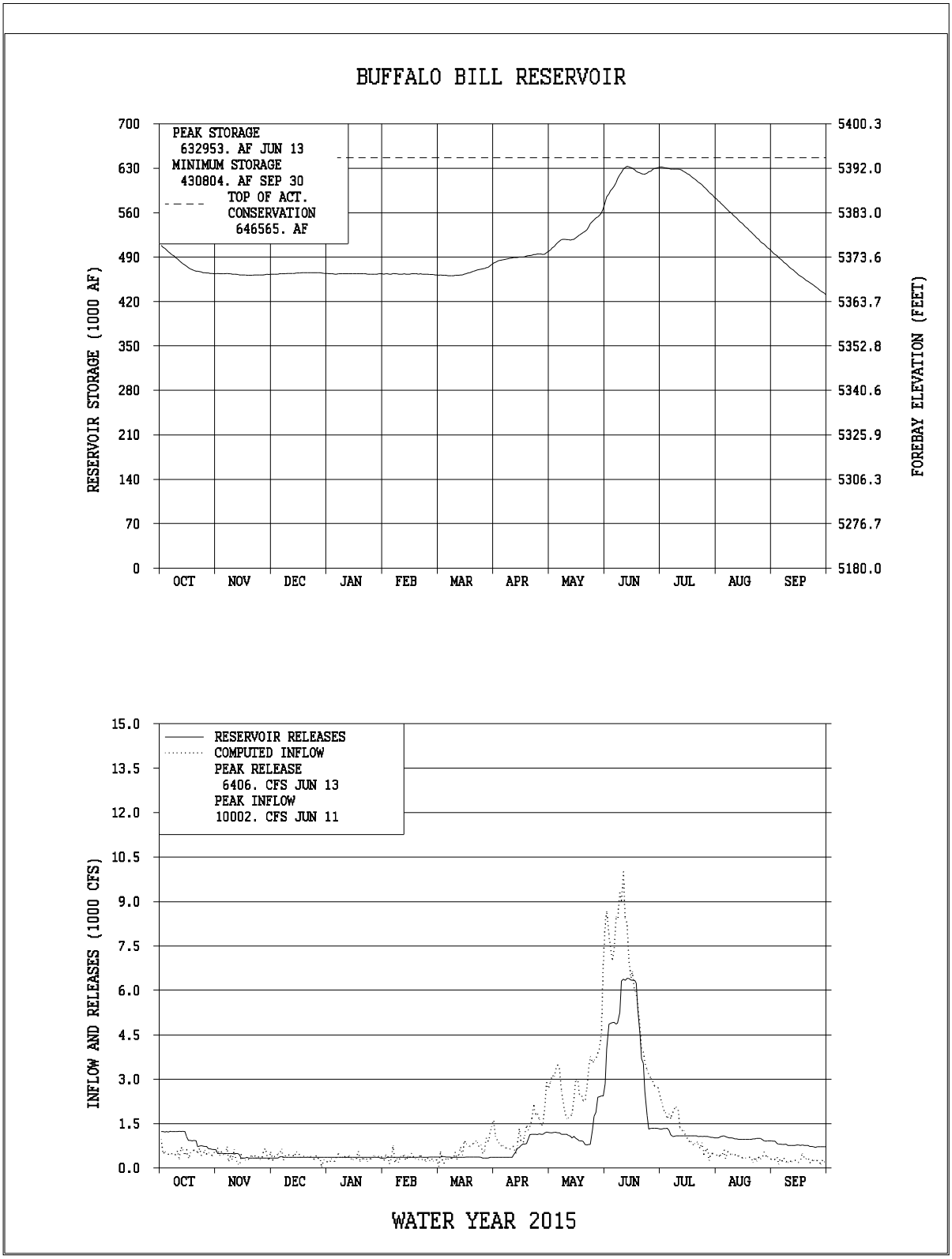

BUFFALO BILL RESERVOIR
PEAK STORAGE
632953. AF JUN 13
MINIMUM STORAGE
430804. AF SEP 30
TOP OF ACT.
CONSERVATION
646565. AF
RESERVOIR STORAGE (1000 AF)
FOREBAY ELEVATION (FEET)
700
630
560
490
420
350
280
210
140
70
0
5400.3
5392.0
5383.0
5373.6
5363.7
5352.8
5340.6
5325.9
5306.3
5276.7
5180.0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
RESERVOIR RELEASES
COMPUTED INFLOW
PEAK RELEASE
6406. CFS JUN 13
PEAK INFLOW
10002. CFS JUN 11
INFLOW AND RELEASES (1000 CFS)
15.0
13.5
12.0
10.5
9.0
7.5
6.0
4.5
3.0
1.5
0.0
WATER YEAR 2015

Table WYT9

WATER YEAR 2015 ACTUAL OUTAGES FOR WYOMING POWERPLANTS

Facilities	Description of Work	Outage Dates
BOYSEN		
Unit 1	K1A Doble and Hi-pot Bus 1	11/17/14 - 12/05/15
Unit 1	Annual Maintenance	01/20/15 - 03/02/15
Unit 2	Annual Maintenance	11/03/14 - 01/14/15
PILOT BUTTE		
Unit 1	Unit in "Mothballed" status	06/01/09 - 09/30/15
Unit 2	Unit in "Mothballed" status	06/01/09 - 09/30/15
BUFFALO BILL		
Buffalo Bill Powerplant		
Unit 1	Annual Maintenance and Tailrace Repair	11/10/14 - 03/05/15
Unit 2	Annual Maintenance and Tailrace Repair	11/18/14 - 03/05/15
Unit 3	Annual Maintenance and Tailrace Repair	11/18/14 - 03/05/15
Shoshone Powerplant		
Unit 3	Annual Maintenance & Divers Inspecting Turbine	02/02/15 – 03/04/15
Heart Mountain Powerplant		
Unit 1	KZ1A Annual Maintenance	10/20/14 - 10/23/14
Unit 1	Annual Maintenance	03/09/15 - 03/30/15
Spirit Mountain Powerplant		
Unit 1	Annual Maintenance	10/21/14 - 10/30/14
Unit 1	Shoshone Conduit Tunnel Repair	03/10/15 - 04/12/15

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 2015. 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, 2014, Bull Lake Reservoir held 104,768 AF of water. Of the 104,768 AF held in Bull Lake, 3,264 AF was Boysen water in Bull Lake. During October 2014 additional Boysen water was stored in Bull Lake. Inflow to Bull Lake was well above average during the winter and spring of WY 2015. Releases were maintained at about 55 cfs through the winter to maintain the level of Bull Lake. Of the water released from Bull Lake during the non-irrigation season, 20 cfs of the release was considered to be Boysen storage water. Inflow from snowmelt runoff began in late April 2015 and during the April-July 2015 period the inflow to Bull Lake was 100 percent of average. The reservoir reached a maximum elevation for the year of 5804.56 feet on June 16, 2015 which was 32.37 feet higher than the minimum elevation for the year of 5772.19 feet that occurred on September 25, 2015. At the end of WY 2015, the content of Bull Lake was 63,684 AF. At the beginning of WY 2016, there was 2,078 AF of Boysen storage water in Bull Lake. This water will be transferred back to Boysen during the winter months of WY 2016 to provide a winter flow in Bull Lake Creek.

Boysen Reservoir

Boysen Reservoir storage at the beginning of WY 2015 was 115 percent of average and 90 percent of capacity. Following the 2014 irrigation season, the release from Boysen Dam was set at approximately 950 cfs. To guarantee a spring flushing flow, the Wyoming Game and Fish Department agreed to a reduced winter release of 925 cfs. The release from the dam was set at 925 cfs on October 24, 2014 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 March 24, 2015. 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. Early in the morning of March 24, 2015 the release from Boysen Dam was increased from 925 cfs to 3,000 cfs. This was followed by an increase from 3,000 cfs to 5,000 cfs when personnel were available at the dam to open the spillway gates. The 5,000 cfs release was maintained for ten hours and then gradually returned to 925 cfs where it remained until late April 2015. During the flushing flow, approximately 5,930 AF of water was released above the 925 cfs winter release.

The month of April 2015 is normally when many species of fish spawn in the upper few feet of the reservoir. To insure a successful spawn, it is important to limit the amount of drawdown on the reservoir during April. In April 2015, the reservoir level fell 0.68 feet during the month.

The reservoir level was at 4722.47 feet going into the Memorial Day weekend, which was 9.73 feet higher than at the beginning of the holiday weekend in 2014.

Buffalo Bill Reservoir

Following the 2014 irrigation season the release from Buffalo Bill Reservoir was set at approximately 350 cfs, based on winter release criteria contained in the 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 WGF Reservoir Research Branch in its efforts to assess fish population and species distribution in the enlarged reservoir through the use of hydro-acoustic technology and by providing WGF river access and an aluminum tube for planting fish in the Shoshone River off the deck of Buffalo Bill Powerplant.

At Buffalo Bill Reservoir, as the reservoir is drawn down, the lake bed is exposed to wind erosion which creates dust in the reservoir area and in the town of Cody, Wyoming. As a part of the enlargement of Buffalo Bill Reservoir, dust abatement dikes were built on the upper ends of the North and South Fork arms of the reservoir to hold water in areas that would become dry as the reservoir level decreased, thus reducing the area of dry lake bed. During the period from October 20, 2014 to March 22, 2015, the water surface elevation of Buffalo Bill Reservoir was below the top of the North Fork Dike at an elevation of 5370.00 feet. The minimum elevation of the pool behind the South Fork Dike of 5392.81 feet occurred on November 24, 2014, and the maximum elevation of 5394.15 feet occurred on October 5, 2014. At the maximum elevation, the pool behind the South Fork Dike covered 208 surface acres. On September 30, 2015, when the water surface elevation of Buffalo Bill Reservoir was at its low for the year of 5364.67 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 5393.20 feet. At the minimum reported elevation of Buffalo Bill Reservoir, 195 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 5393.23 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 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 WY 2015 12,011 AF of water was pumped from Diamond Creek Reservoir into Buffalo Bill Reservoir.

SUMMARY

OF OPERATIONS

FOR WATER YEAR 2015

FOR RESERVOIRS

(**Angostura, Belle Fourche, Deerfield, E.A. Patterson, Lake Tschida, Jamestown, Keyhole, Pactola, and Shadehill**)

UNDER THE RESPONSIBILITY

OF THE

DAKOTAS AREA OFFICE

WEATHER SUMMARY FOR NORTH AND SOUTH DAKOTA WY 2015

October 2014 precipitation was average at Belle Fourche and Heart Butte reservoirs; below average at Angostura, Keyhole and Pactola reservoirs; much below average at Deerfield and Shadehill reservoirs; very much below average at Dickinson and Jamestown reservoirs.

November 2014 precipitation was above average at Pactola reservoir; average at Deerfield reservoir; below average at Angostura and Shadehill reservoirs; much below average at Belle Fourche, Dickinson, Heart Butte, Jamestown and Keyhole reservoirs.

December 2014 precipitation was average at Angostura reservoir; much below average at Belle Fourche, Deerfield, and Heart Butte reservoirs; very much below average at Dickinson, Jamestown, Keyhole, Pactola and Shadehill reservoirs.

January 2015 precipitation was very much above average at Deerfield reservoir; above average at Keyhole reservoirs; average at Angostura, Belle Fourche, and Heart Butte reservoirs; below average at Pactola reservoir; much below average at Dickinson and Jamestown reservoirs; very much below average at Shadehill reservoir.

February 2015 precipitation was above average at Belle Fourche and Heart Butte reservoirs; below average at Deerfield reservoir; much below average at Angostura, Dickinson, Pactola, Keyhole reservoirs; very much below average at Jamestown and Shadehill reservoirs.

March 2015 precipitation was below average at Dickinson, Jamestown and Shadehill reservoirs; much below average at Heart Butte reservoir; very much below average at Angostura, Belle Fourche, Deerfield, Keyhole and Pactola reservoirs.

April 2015 precipitation was below average at Dickinson and Pactola reservoirs; much below average at Angostura, Belle Fourche and Shadehill reservoirs; very much below average at Deerfield, Heart Butte, Jamestown, and Keyhole reservoirs.

May 2015 precipitation was very much above average at Angostura, Belle Fourche, Deerfield, Heart Butte, Jamestown, Pactola and Shadehill reservoirs; below average at Dickinson reservoir; very much below average at Keyhole reservoir.

June 2015 precipitation was very much above average at Angostura, Belle Fourche, Deerfield, Jamestown, Keyhole, Pactola and Shadehill reservoirs; average at Dickinson and Heart Butte reservoirs.

July 2015 precipitation was very much above average at Pactola reservoir; much above average at Angostura reservoir; average at Dickinson, Jamestown and Keyhole reservoirs; below average at Deerfield reservoir; very much below average at Belle Fourche, Heart Butte, and Shadehill reservoirs.

August 2015 precipitation was very much above average at Belle Fourche, Heart Butte, and Keyhole reservoirs; much above average at Deerfield and Pactola reservoirs; below average at Shadehill reservoir; much below average at Angostura reservoir, Dickinson, and Jamestown reservoirs.

September 2015 precipitation was average at Heart Butte reservoir; below average at Deerfield reservoir; much below average at Angostura reservoir; very much below average at Belle Fourche, Dickinson, Jamestown, Keyhole, Pactola and Shadehill reservoirs.

WY 2015 precipitation for Reclamation facilities in North Dakota, South Dakota, and northeastern Wyoming are shown in Table DKT1.

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

Reservoir	2015 Total	Average Total	Percent
Angostura 1/	21.10	17.67	119
Belle Fourche 2/	19.79	15.86	125
Deerfield 3/	15.81	13.99	113
Keyhole 4/	16.04	19.20	84
Pactola	30.74	20.58	149
Shadehill 5/	16.56	17.86	93
Dickinson	10.52	15.77	67
Heart Butte	15.85	16.27	97
Jamestown	21.37	18.77	114

1/ Angostura Reservoir's annual precipitation data is from the Hot Springs, SD, climate station.
2/ Belle Fourche Reservoir's annual precipitation data is from the Newell, SD climate station.
3/ Deerfield reservoir's annual and average precipitation data is from the Deerfield, Dam flip bucket rain gauge recorded by Hydromet.
4/ Keyhole Reservoir's annual precipitation data is from the Sundance, WY climate station.
5/ Shadehill Reservoir's annual precipitation data is from the Lemmon, SD climate station.

TABLE DKT2
Comparison of End-of-Water-Year Storage Content for Reservoirs in North Dakota, South Dakota, and Northeastern Wyoming in AF

Reservoir	Storage September 30, 2014	Storage September 30, 2015	Change in Storage
Angostura	97,807	100,959	3,152
Belle Fourche	116,661	112,086	-4,575
Deerfield	15,235	14,825	-410
Keyhole	169,298	168,256	-1,042
Pactola	46,537	50,952	4,415
Shadehill	119,171	112,506	-6,665
Dickinson	7,669	4,040	-3,629
Heart Butte	59,969	60,156	187
Jamestown	26,563	29,589	3,026

Table DKT2. displays the changes in storage content between September 30, 2014, and September 30, 2015, at reservoirs in North and South Dakota and eastern Wyoming.

FLOOD BENEFITS

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 WY 2014. They are: E.A. Patterson on the Heart River near Dickinson, North Dakota; Heart Butte on the Heart River near Glen Ullin, North Dakota; Jamestown on the James River near Jamestown, North Dakota; Shadehill on the Grand River near Lemmon, South Dakota; Angostura on the Cheyenne River near Hot Springs, South Dakota; Pactola on Rapid Creek near Rapid City, South Dakota; Keyhole on the Belle Fourche River near Moorcroft, Wyoming.

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

FLOOD DAMAGE PREVENTED IN 2015
ACCUMULATED TOTAL 1950-2015

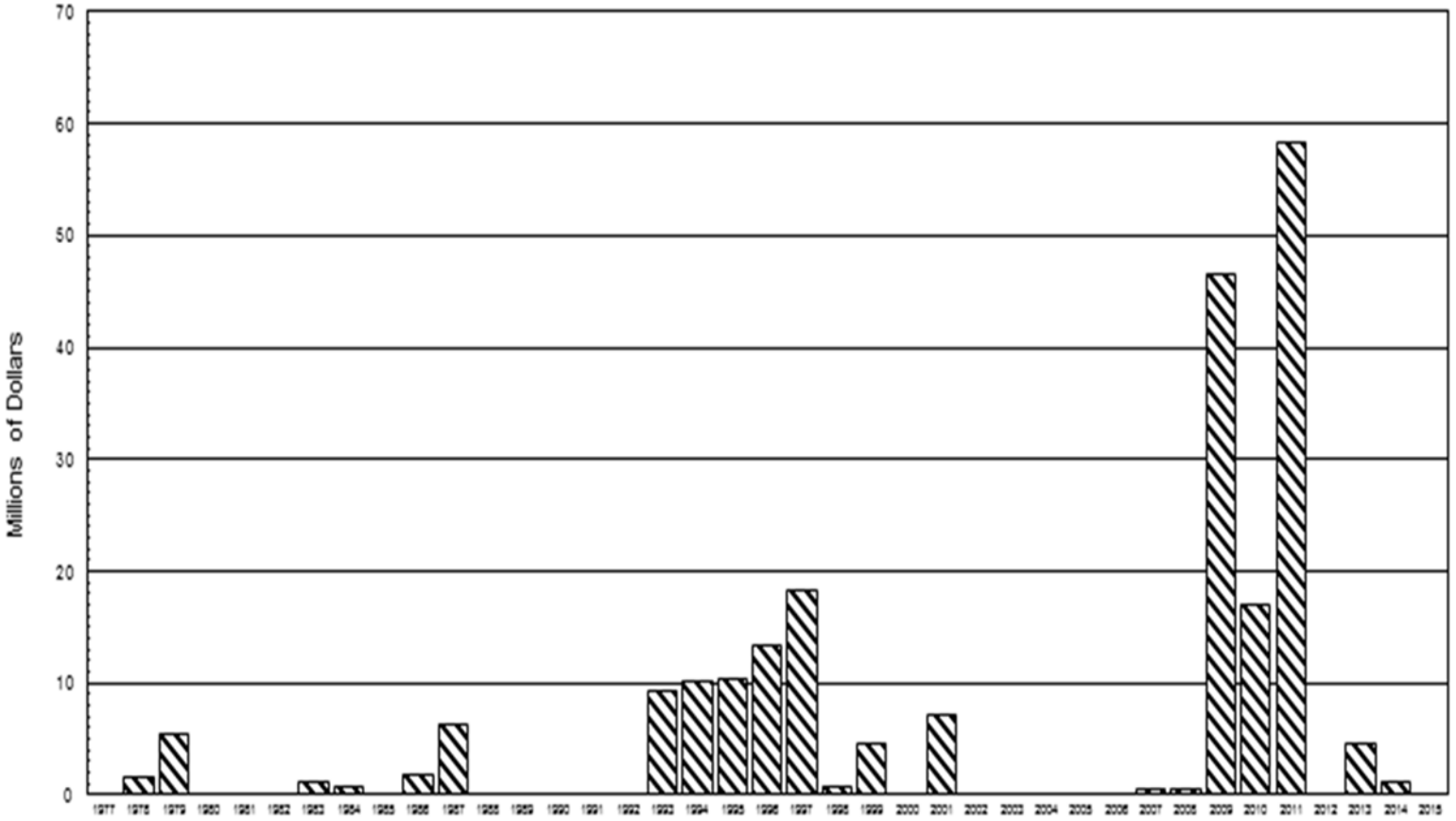
	Local	Main-Stem	2015 Total	Previous Accumulations	1950-2015 Accum Totals
Heart Butte	$0	$3,700	$3,700	$15,567,000	$15,570,700
Shadehill	$0	$79,800	$79,800	$12,160,700	$12,240,500
Angostura	$0	$0	$0	$22,800	$22,800
Pactola	$133,600	$32,300	$165,900	$3,551,100	$3,717,000
Keyhole	$0	$76,300	$76,300	$4,181,500	$4,257,800
Jamestown	$0	$0	$0	$208,052,100	$208,052,100
Total	$133,600	$192,100	$325,700	$243,710,800	$244,036,500

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

FIGURE DKG1

FLOOD DAMAGES PREVENTED

By Dakota Area Projects Between Garrison and Gavins Point Dams



UNIT OPERATIONAL SUMMARIES FOR WY 2015

DICKINSON RESERVOIR

BACKGROUND

Dickinson Dam and Edward Arthur Patterson Lake (Dickinson Reservoir) is located on the Heart River one mile west of Dickinson, North Dakota. The reservoir has a dead capacity of 356 AF, an inactive capacity of 100 AF and an active conservation capacity of 8,156 AF (for a total storage capacity of 8,612 AF at the top of conservation elevation 2420.00). Reservoir water is used for irrigating approximately 230 acres along the Heart River downstream of the dam and for municipal use by the Dickinson Parks and Recreation District.

WY 2015 OPERATIONS SUMMARY

Dickinson Reservoir started WY 2015 at an elevation of 2419.18 feet and storage of 7,669 AF, which is 0.82 feet, and 943 AF below the top of the conservation pool (elevation of 2420.00 feet and storage of 8,612 AF). Dickinson Reservoir peaked at an elevation of 2420.63 feet on February 8, 2015 with 9,860 AF of storage. The minimum reservoir elevation for WY 2015 was 2415.16 feet with storage of 4,040 AF which occurred on September 30, 2015, which is 4.84 feet, and 4,572 AF below the top of conservation pool.

The maximum instantaneous discharge of 626 cfs occurred on October 10, 2014. Reservoir net inflows for WY 2015 were the twenty ninth highest on record for the dam and totaled 16,914 AF, 84 percent of average. The maximum 24 hour computed inflow occurred on January 26, 2015 with 642 cfs. Precipitation for WY 2015 totaled 10.52 inches, which is 67 percent of average.

Zero AF of water was released specifically for downstream irrigation.

An Emergency Management/Security orientation was conducted on March 12, 2015.

On January 27, 2015 after a brief warm up provided enough snow melt for a rare January spill, Dickinson Dam went into Internal Alert with a reservoir elevation over 2420.00 feet. The warm up was immediately followed by a return to below zero temperatures. The reservoir was kept in Internal Alert until the reservoir elevation dropped below 2420.00 feet, on February 19, 2015, when the reservoir was put back into normal operating conditions.

Spring thaw occurred on April 1, 2015 and an Internal Alert was declared and lasted until the reservoir elevation dropped below 2420.00 feet, on May 21, 2015, when the reservoir was put back into normal operating conditions.

August 4, 2015, during a routine inspection, a dead beaver and about 10 gallons of sediment were discovered in the toe drain outlet weir box. A video inspection on August 25, 2015 revealed that there was a second dead beaver stuck in the toe drain, at the tee, 65 feet from the outlet. The second beaver was removed and additional monitoring was initiated. Internal Alert was declared on August 21, 2015 for sediment transport from the toe drain.

To facilitate recoating of the Bascule Gate and replacement of the seals the Reservoir was drawn down to an elevation of 2415.69 feet in July 2015.

An Annual Site Inspection (ASI) was conducted on August 26, 2015 by personnel from the Dakotas Area Office. The Annual Site Inspection report was signed on October 1, 2015.

MONTHLY STATISTICS FOR WY 2015

Record and near record monthly inflows in 64 years of record keeping were recorded in the following months: October 2014 had its third highest inflow, November 2014 had its seventh highest inflow, December 2014 had its eighth highest inflow, January 2015 had its first highest inflow, February 2015 had its fourth highest inflow, and July 2015 had its tenth highest inflow.

Record or near record monthly end of month content in 64 years of record keeping were recorded in the following months: January 2015 had its third highest storage, February 2015 had its thirteenth highest storage, April 2015 had its fifteenth highest storage, July 2015 had its tenth lowest storage, August 2015 had its eighth lowest storage, and September 2015 had its ninth lowest storage.

Additional statistical information on Dickinson Reservoir and its operations during WY 2015 can be found in Table DKT3 and Figure DKG2.

TABLE DKT3
HYDROLOGIC DATA FOR WY 2015
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	2,419.18	7,669	OCT 01, 2014
END OF YEAR	2,415.16	4,040	SEP 30, 2015
ANNUAL LOW	2,415.16	4,040	SEP 30, 2015
ANNUAL HIGH	2,420.63	9,860	FEB 08, 2015
HISTORIC HIGH	2,422.19	***9,348	MAR 21, 1997

INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	16,914	OCT 14-SEP 15	20,542	OCT 14-SEP 15
DAILY PEAK (CFS)*	642	JAN 26, 2015	626	OCT 10, 2014
DAILY MINIMUM (CFS)**	0	**	0	**

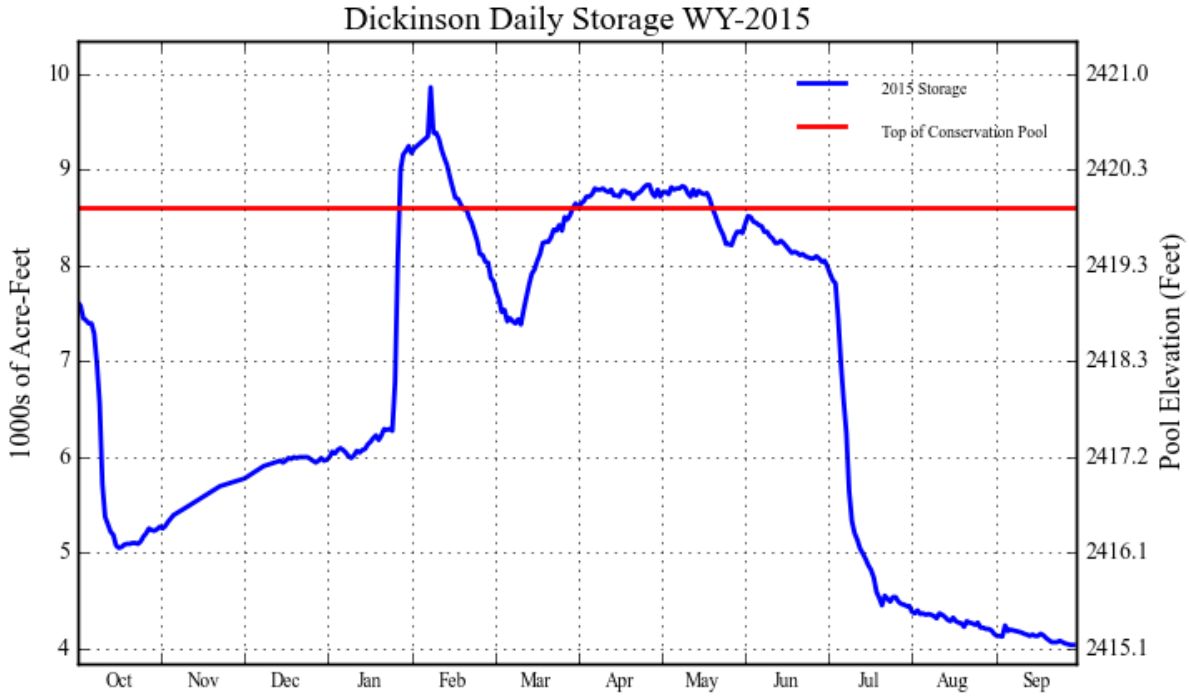
MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	1,632	261	4,027	507	5,274	95
NOVEMBER	495	306	0	NA	5,769	106
DECEMBER	203	155	0	NA	5,972	109
JANUARY	4,416	1,980	1,215	650	9,173	167
FEBRUARY	4,097	404	5,241	695	8,029	138
MARCH	1,890	27	1,319	23	8,600	123
APRIL	963	21	843	19	8,720	122
MAY	997	39	1,364	51	8,352	117
JUNE	1,065	44	1,377	56	8,040	113
JULY	1,563	180	5,157	369	4,446	67
AUGUST	-254	NA	0	NA	4,192	69
SEPTEMBER	-152	NA	0	NA	4,040	70
ANNUAL	16,914	84	20,542	102		
APRIL-JULY	4,588	41				

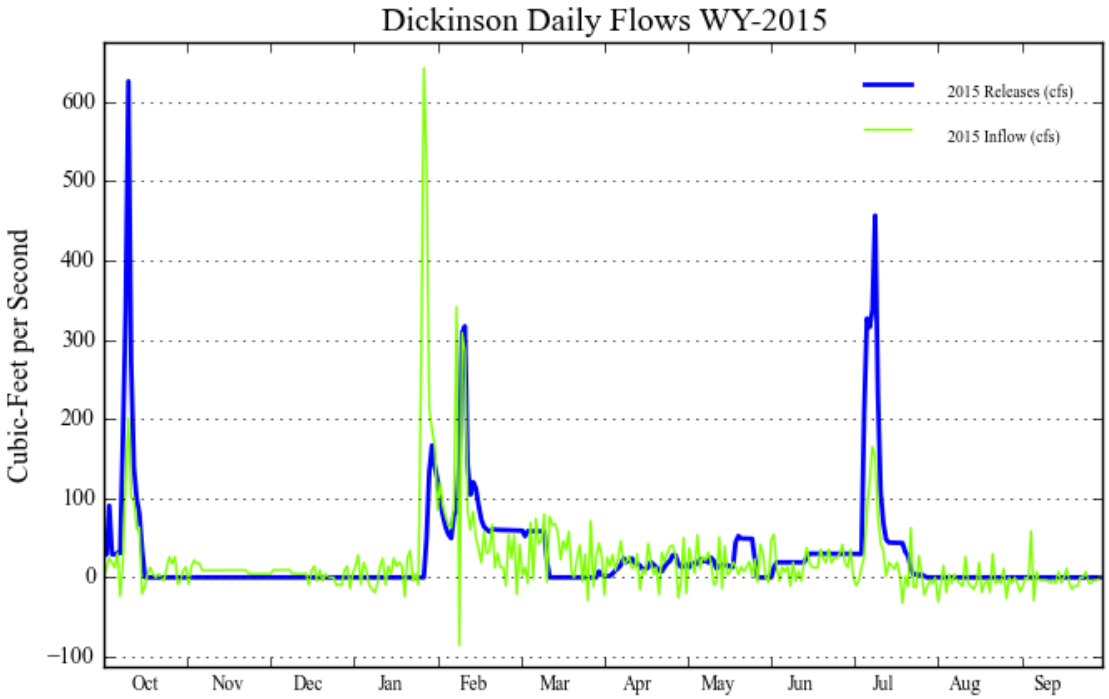
* 24 hour daily inflow and 15 minute instantaneous discharge

** 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 @ Elevation 2421.08 on June 9, 1982)

Figure DKG2
Dickinson Reservoir





HEART BUTTE RESERVOIR

BACKGROUND

Heart Butte Dam and Lake Tschida (Heart Butte Reservoir) are located on the Heart River 15 miles south of Glen Ullin, North Dakota. The reservoir has a dead storage capacity of 5,227 AF, an active conservation capacity of 61,915 AF (for a total storage capacity of 67,142 AF at the top of active conservation elevation of 2064.50 feet), and an exclusive flood control space of 147,027 AF. Flood control storage is located above the crest of an ungated morning glory inlet 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 now being irrigated.

WY 2015 OPERATIONS SUMMARY

Heart Butte Reservoir started WY 2015 at an elevation of 2062.26 feet and storage of 59,969 AF, which is 2.24 feet, and 7,173 AF below the top of conservation pool (elevation of 2064.50 feet and storage of 67,142 AC). Heart Butte Reservoir peaked at an elevation of 2066.53 feet on February 12, 2015 with 74,016 AF of storage. The minimum reservoir elevation for WY 2015 was 2061.79 feet and storage of 58,519 AF which occurred on January 19, 2015. The reservoir elevation on September 30, 2015 was 2062.32 feet with storage of 60,156 AF, which is 2.18 feet and 6,986 AF below the top of conservation pool.

A maximum discharge of 819 cfs occurred on February 13, 2015. Reservoir net inflows for WY 2015 were the forty second lowest on record for the dam and totaled 85,883 AF, 96 percent of average. The maximum 24 hour computed inflow occurred on February 12, 2015 with 1,283 cfs. Precipitation for WY 2015 totaled 15.85 inches, which is 97 percent of average.

No water was released specifically for downstream irrigation.

An Emergency Management/Security orientation was conducted on March 11, 2015.

On January 30, 2015 Heart Butte Reservoir went into Internal Alert with a reservoir elevation over 2064.50 feet and remained there until February 27, 2015 when the reservoir elevation dropped below an elevation of 2064.50 feet and returned to normal operating conditions.

On March 16, 2015 Heart Butte Dam went into Internal Alert with a reservoir elevation over 2064.50 feet and remained there until March 28, 2015 when the reservoir elevation dropped below an elevation of 2064.50 feet and returned to normal operating conditions.

On May 17, 2015 Heart Butte Dam went into Internal Alert with a reservoir elevation over 2064.50 feet and remained there until June 21, 2015 when the reservoir elevation dropped below an elevation of 2064.50 feet and returned to normal operating conditions.

MONTHLY STATISTICS FOR WY 2015

Record and near record monthly inflows in 66 years of record keeping were recorded in the following months: October 2014 had its fourth highest inflow, November 2014 had its fourth highest inflow, December 2014 had its third highest inflow, January 2015 had its first highest inflows, and February 2015 had its second highest storage.

Record and near record monthly end of month content in 66 years of record keeping were recorded in the following months: January 2015 had its seventh highest storage, and February 2015 had its fifteenth highest storage.

Additional statistical information on Heart Butte Reservoir and its operations during WY 2015 can be found in Table DKT4 and Figure DKG3.

TABLE DKT4
HYDROLOGIC DATA FOR WY 2015
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

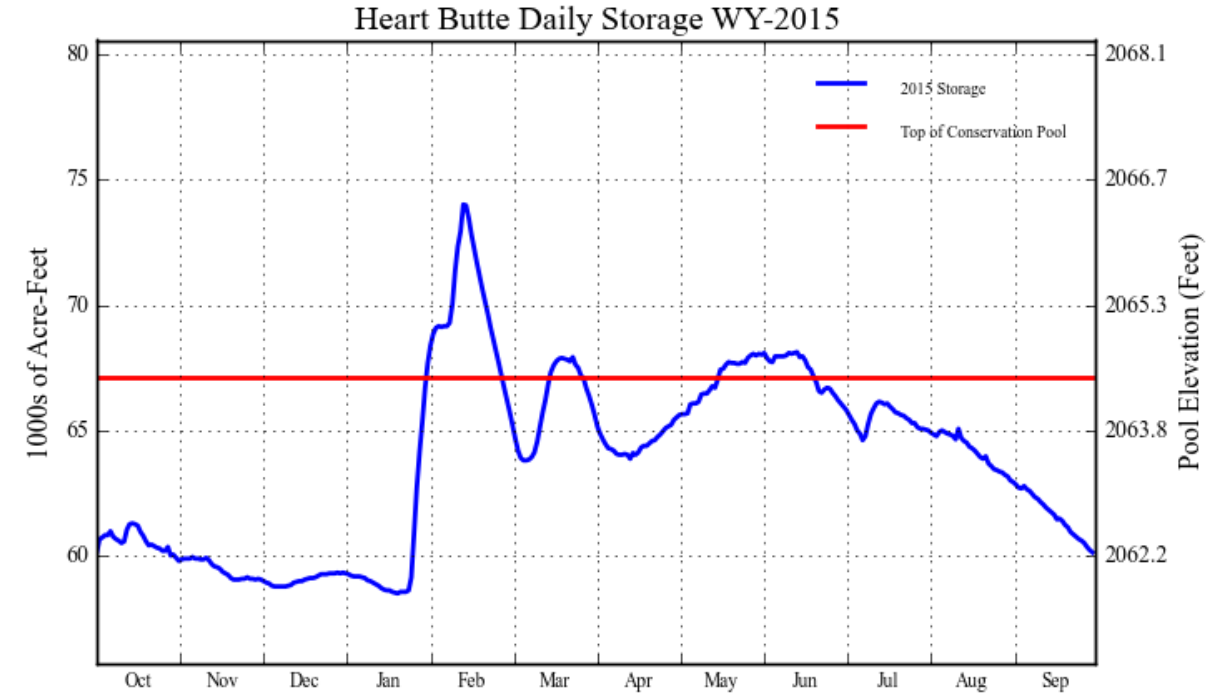
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	2,062.26	59,969	OCT 01, 2014
END OF YEAR	2,062.32	60,156	SEP 30, 2015
ANNUAL LOW	2,061.79	58,519	JAN 19, 2015
ANNUAL HIGH	2,066.53	74,016	FEB 12, 2015
HISTORIC HIGH	2,086.23	173,203	APR 09, 1952

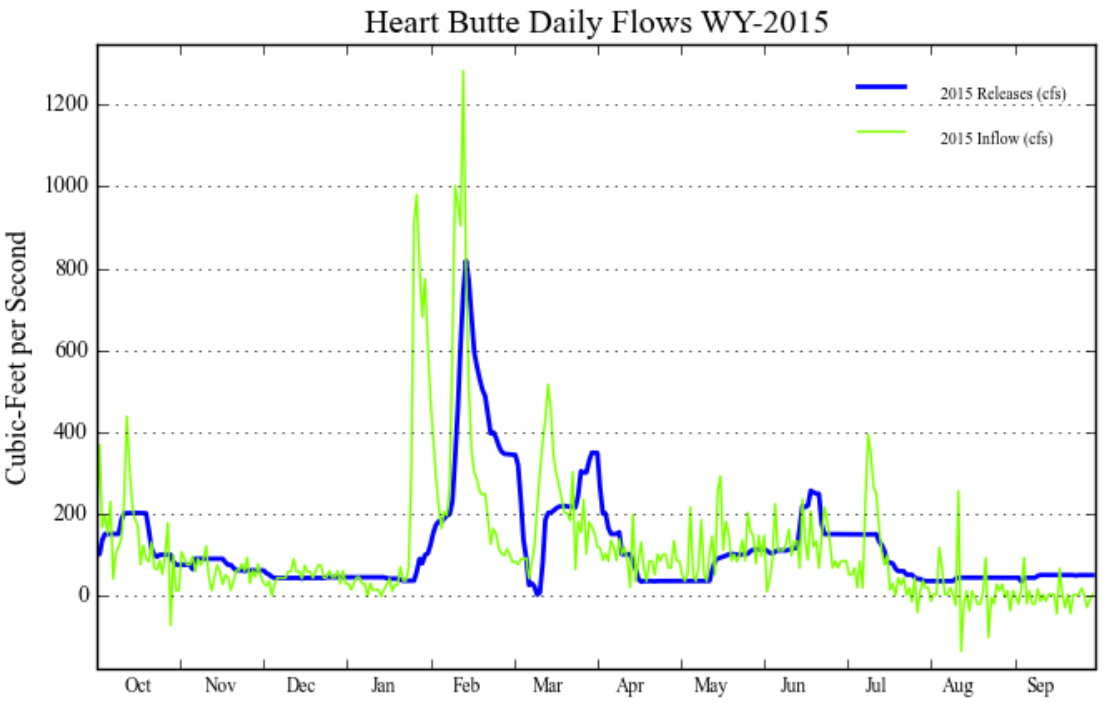
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	85,883	OCT 14-SEP 15	85,696	OCT 14-SEP 15
DAILY PEAK (CFS)	1,283	FEB 12, 2015	819	FEB 13, 2015
DAILY MINIMUM (CFS)	0	*	0	*

MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	8,601	626	8,756	383	59,814	103
NOVEMBER	3,695	301	4,437	308	59,072	102
DECEMBER	2,932	341	2,685	207	59,319	103
JANUARY	12,205	1,248	3,123	275	68,401	119
FEBRUARY	20,842	615	23,022	1,068	66,221	112
MARCH	12,339	43	12,535	70	66,025	94
APRIL	5,675	22	6,262	25	65,438	93
MAY	7,007	67	4,376	39	68,069	98
JUNE	7,107	66	9,086	92	66,090	94
JULY	5,137	122	6,178	78	65,049	98
AUGUST	430	23	2,457	43	63,022	101
SEPTEMBER	-86	NA	2,780	95	60,156	100
ANNUAL	85,883	96	85,696	97		
APRIL-JULY	24,926	56				

* Frequently observed during fall and winter months

Figure DKG3
Heart Butte Reservoir





JAMESTOWN RESERVOIR

BACKGROUND

Jamestown Reservoir is located on the James River just above the city of Jamestown, North Dakota. The reservoir has a dead capacity of 292 AF, an active conservation capacity of 23,934 AF (for a total top of active conservation capacity of 24,226 AF at an elevation of 1428.00 feet), a joint-use capacity of 6,262 AF, and an exclusive flood control space of 190,502 AF. Exclusive flood control storage is located below the crest of an ungated morning glory inlet spillway and flood control releases are controlled by two 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.

WY 2015 OPERATIONS SUMMARY

Jamestown Reservoir started WY 2015 at an elevation of 1429.20 feet and storage of 26,563 AF, which is 1.20 feet, and 2,337 AF above the top of the conservation pool (elevation of 1428.00 feet and storage of 24,226 AF). Jamestown Reservoir peaked at an elevation of 1431.85 feet on May 25, 2015 with 32,545 AF of storage. The minimum reservoir elevation for WY 2015 was 1429.26 feet and storage of 26,563 AF which occurred on October 1, 2014. The reservoir elevation on September 30, 2015 was 1430.61 feet with storage of 29,589 AF, which is 2.61 feet, and 5,363 AF above the top of active conservation pool.

The maximum instantaneous discharge of 304 cfs occurred on May 30, 2015. Reservoir net inflows for WY 2015 were the twenty ninth lowest inflows on record for the dam and totaled 19,104 AF, 33 percent of average. The maximum 24 hour computed inflow occurred on May 17, 2015 with 1,138 cfs. Precipitation for WY 2015 totaled 21.37 inches at 114 percent of average.

No water was released specifically for downstream irrigation.

An Emergency Management/Security orientation was conducted on March 10, 2015.

On May 17, 2015 Jamestown Reservoir went into Internal Alert with a reservoir elevation over 1431.00 feet and remained there until June 1, 2015 when the reservoir elevation dropped below an elevation of 1431.00 feet and returned to normal operating conditions.

On June 13, 2015 the reservoir went back into Internal Alert with a reservoir elevation over 1431.00 feet and remained there until June 29, 2015 when the reservoir elevation dropped below an elevation of 1431.00 feet and returned to normal operating conditions.

A Periodic Facility Review was conducted on June 16, 2015 by personnel from the Dakotas Area Office and from the GP Regional Office. The Periodic Facility Review examination report was signed on August 11, 2015.

MONTHLY STATISTICS FOR WY 2015

Record and near record monthly inflows in 61 years of record keeping were recorded in the following months: April 2015 had its second lowest inflow; June 2015 had its sixteenth highest inflow.

Record and near record monthly end of month content in 61 years of record keeping were recorded in the following months: There were none in the top or bottom 15 storages.

Additional statistical information on Jamestown Reservoir and its operations during WY 2015 can be found in Table DKT5 and Figure DKG4.

TABLE DKT5
HYDROLOGIC DATA FOR WY 2015
JAMESTOWN RESERVOIR

RESERVOIR ALLOCATIONS	ELEVATION (FEET)	TOTAL RESERVOIR STORAGE (AF)	STORAGE ALLOCATION (AF)
TOP OF INACTIVE AND DEAD	1,400.00	292	292
TOP OF ACTIVE CONSERVATION	1,428.00	24,226	23,934
TOP OF JOINT USE	1,431.00	30,488	6,262
TOP OF EXCLUSIVE FLOOD CONTROL	1,454.00	220,990	190,502

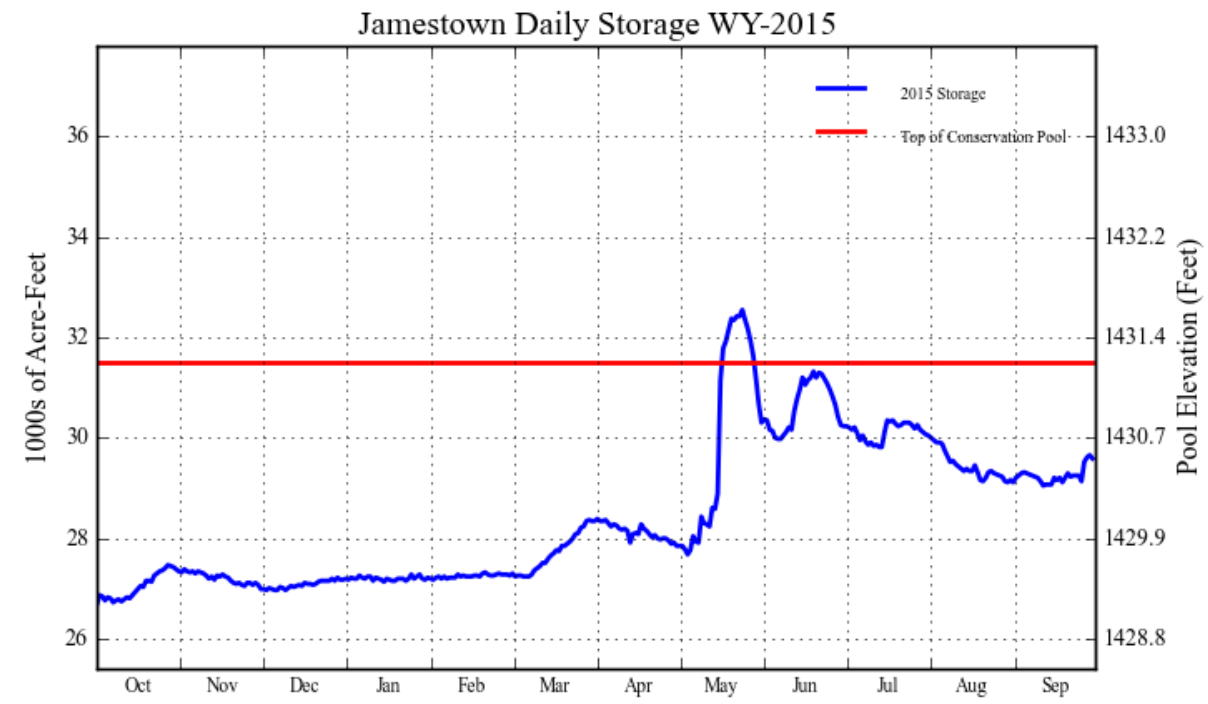
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE
BEGINNING OF YEAR	1,429.20	26,563	OCT 01, 2014
END OF YEAR	1,430.61	29,589	SEP 30, 2015
ANNUAL LOW	1,429.26	26,563	MAR 08, 2015
ANNUAL HIGH	1,431.85	32,545	MAY 11, 2015
HISTORIC HIGH	1,454.10	222,318	APR 26, 2009

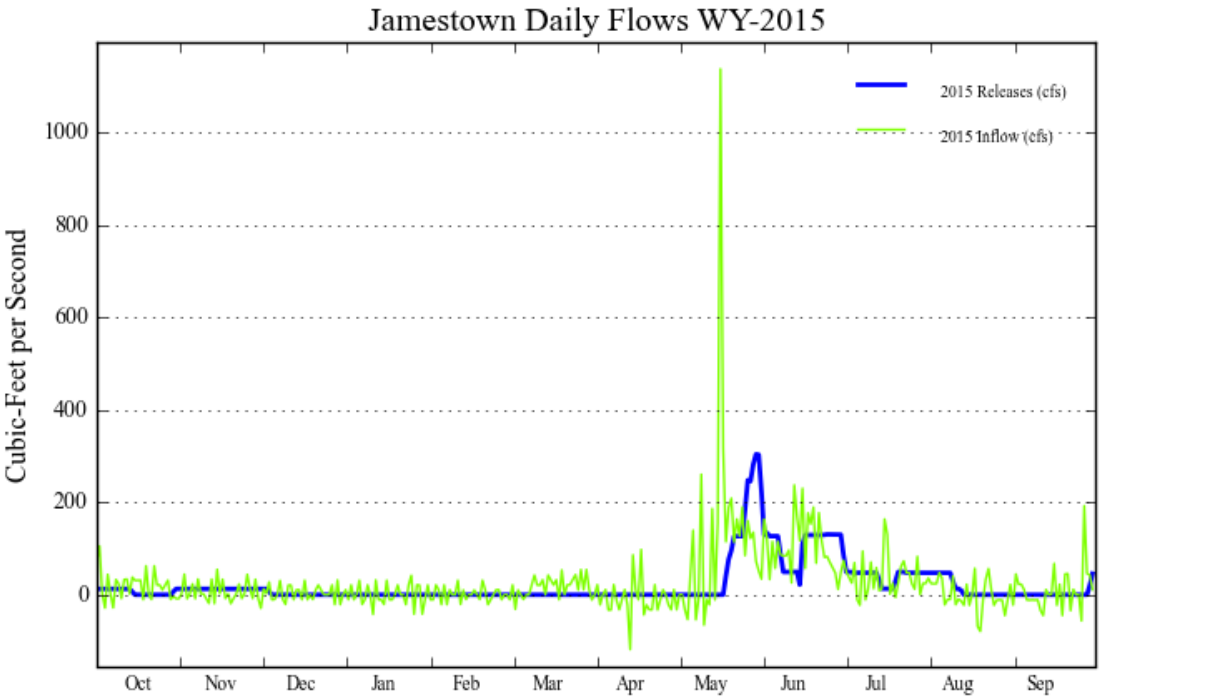
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	19,104	OCT 14-SEP 15	16,078	OCT 14-SEP 15
DAILY PEAK (CFS)	1,138	MAY 17, 2015	304	MAY 30, 2015
DAILY MINIMUM (CFS)	0	*	0	*

MONTH	INFLOW		OUTFLOW		CONTENT	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	1,186	101	404	12	27,345	108
NOVEMBER	407	41	759	56	26,992	108
DECEMBER	271	65	64	17	27,199	109
JANUARY	0	NA	0	NA	27,199	109
FEBRUARY	83	34	0	NA	27,282	109
MARCH	1,063	16	0	NA	28,345	91
APRIL	-430	NA	0	NA	27,915	60
MAY	7,303	75	4,542	31	30,676	74
JUNE	6,170	149	6,591	63	30,255	86
JULY	2,426	57	2,611	39	30,070	92
AUGUST	66	2	976	19	29,160	92
SEPTEMBER	558	42	129	3	29,589	106
ANNUAL	19,104	33	16,078	28		
APRIL-JULY	15,469	36				

* 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. Deerfield Reservoir (Rapid Valley Project) and Pactola Reservoir (Rapid Valley Unit, P-SMBP), furnish a supplemental irrigation supply to about 8,900 acres in the Rapid Valley Water Conservancy District (District) and furnish replacement water for a portion of the water used from Rapid Creek by Rapid City. A contract is in place between the United States, Rapid City, South Dakota and the District for the storage space at Deerfield Reservoir. The majority of prior rights to the flows of Rapid Creek during the irrigation season is 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 AF with an additional 26,655 AF of surcharge capacity.

During the winter of 1995-1996 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 that it is capable of providing.

WY 2015 OPERATIONS SUMMARY

Deerfield Reservoir started WY 2015 at an elevation of 5907.00 feet and storage of 15,235 AF, which is 1.02 feet and 419 AF below the top of the conservation pool elevation of 5,908.0 feet. Precipitation for WY 2015 was 113 percent of average. Inflows for WY 2015 totaled 18,580 AF (187 percent of the average). The peak inflows occurred in June 2015, totaling 3,607 AF for the month. The peak reservoir elevation for WY 2015 was 5,908.06 feet, storage of 15,690 AF, which occurred on May 31, 2015. The minimum elevation for WY 2015 was 5,905.61 feet, storage of 14,669 AF, which occurred on July 28, 2015. WY 2015 ended at an elevation of 5905.99 feet and storage of 14,825 AF, which is 2.01 feet and 820 AF below the top of the conservation pool. Deerfield Reservoir ended the water year with 14,674 AF in active storage.

Rapid Valley Water Conservancy District did not order water from Deerfield Reservoir for irrigation. Rapid City did not release water from Deerfield Reservoir for the municipal water supply in WY 2015.

An Emergency Management/Security Orientation Exercise was held for Deerfield and Pactola Reservoirs March 18, 2015.

The Periodic Facility Review of Deerfield was conducted August 18, 2015. There are no incomplete SOD Recommendations.

Deerfield Reservoir went into Internal Alert on May 10, 2015 after reaching an elevation of 5908.0 feet, which is also the top of active conservation elevation. The reservoir was put back into normal operations on July 10, 2015. Releases from Deerfield Dam increased from 20 cfs to a maximum of 70 cfs during this time frame, and 20 cfs continued to be released from the end of July 2015 through September 2015. Peak releases from Deerfield Dam were at 70 cfs from July 2, 2015 to July 8, 2015.

MONTHLY STATISTICS FOR WY 2015

Record monthly inflows were recorded in the following months:
Inflows: second highest for June 2015, fourth highest for July 2015, fifth highest for August 2015, fifth highest for September 2015.

Record monthly end of month content were recorded in the following months:
End of Month Storage: third highest in December 2014, third highest in May 2015.

Additional statistical information on Deerfield Reservoir and its operations during WY 2015 can be found in Table DKT6 and Figure DKG5.

TABLE DKT6
HYDROLOGIC DATA FOR WY 2015
DEERFIELD RESERVOIR

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

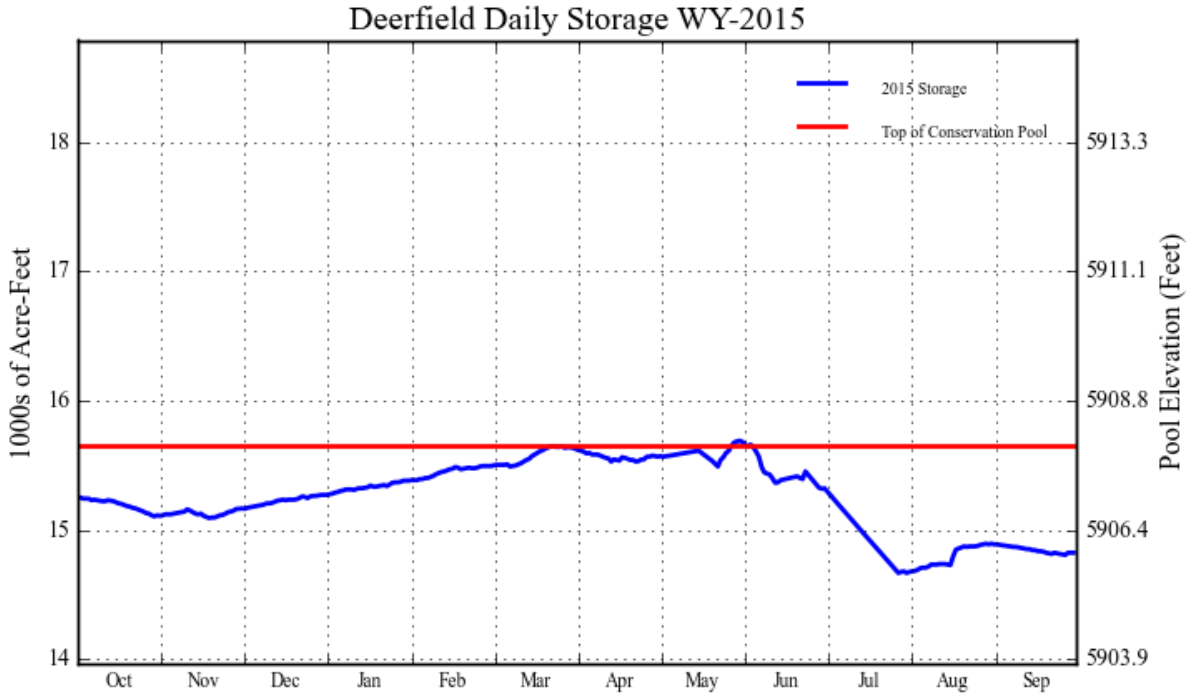
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE (end-of-day)
BEGINNING OF YEAR	5,906.98	15,235	SEP 30, 2014
END OF YEAR	5,905.99	14,825	SEP 30, 2015
ANNUAL LOW	5,905.61	14,769	JUL 28, 2015
ANNUAL HIGH	5,908.06	15,690	MAY 31, 2015
HISTORIC HIGH	5,909.05	16,157	FEB 25, 1985

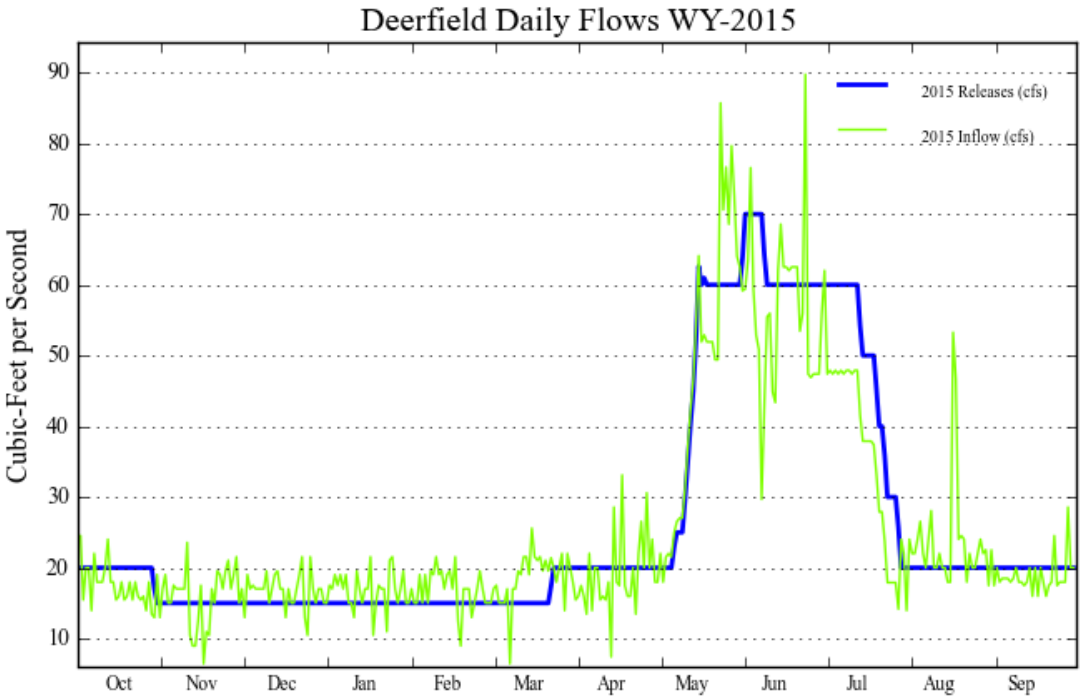
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	18,850	OCT 01-SEP 30	18,738	OCT 01-SEP 30
PEAK DAILY (CFS)	90	JUN 24, 2015	70	JUN 02, 2015
MINIMUM DAILY (CFS)	6	NOV 16, 2014	15	OCT 30, 2014

MONTH	INFLOW		OUTFLOW		EOM CONTENT**	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	1,079	162	1,204	125	15,110	120
NOVEMBER	951	159	893	275	15,168	118
DECEMBER	1,026	164	922	300	15,272	117
JANUARY	1,036	167	922	251	15,386	115
FEBRUARY	942	164	833	224	15,495	114
MARCH	1,146	131	1,006	143	15,635	113
APRIL	1,126	94	1,190	95	15,571	111
MAY	2,863	205	2,744	161	15,690	111
JUNE	3,607	296	3,725	101	15,319	109
JULY	2,228	260	2,878	111	14,669	106
AUGUST	1,456	213	1,230	103	14,895	112
SEPTEMBER	1,120	184	1,190	103	14,825	116
ANNUAL	18,580	187	18,738	188	15,253	113
APRIL-JULY	9,824	210	10,537	220	15,312	109

* 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 AF (54,955 AF active) and 43,057 AF 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 Inc. 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 AF for the city and 6,000 AF was retained by Reclamation.

WY 2015 OPERATIONS SUMMARY

Pactola Reservoir started WY 2015 at an elevation of 4,568.41 feet and storage of 46,537 AF, which is 11.79 feet and 9,435 AF below the top of the conservation pool elevation of 4,580.20 feet. Precipitation for WY 2015 was 149% percent of average. Inflows for WY 2015 totaled 109,604 AF (301 percent of average). Peak inflows occurred in June 2015, totaling 32,778 AF for the month. The peak reservoir elevation for WY 2015 was 4,589.43 feet, storage of 64,246 AF, which occurred on June 29, 2015. The minimum elevation for WY 2015 was 4,568.66 feet, storage of 46,537 AF, which occurred on October 1, 2014. Pactola Reservoir ended WY 2015 at an elevation of 4,574.15 feet, storage of 50,952 AF, and active storage of 49,935 AF, which is 6.05 feet and 5,020 AF below the top of the conservation pool.

Rapid Valley Water Conservancy District did not order water from Deerfield for irrigation. Rapid City did not release water from Deerfield for the municipal water supply in 2015.

An Emergency Management/Security Orientation Exercise was held for Deerfield and Pactola Reservoirs March 18, 2015.

The Periodic Facility Review of Pactola Reservoir was conducted August 19, 2015. There are no incomplete SOD Recommendations.

The City of Rapid City reconstructed Canyon Lake Dam during the fall of 2014 to spring 2015. Pactola Reservoir was lowered 12 feet below the top of conservation pool (elevation 4568.2 feet) by the end of September 2014 in anticipation of the construction work downstream at Canyon Lake Dam. This was to allow for storage room in the reservoir for fall and winter inflows so that smaller fall and winter releases can be made during the Canyon Lake Dam construction. Once the project started in October 2014 the reservoir gained 7 feet in elevation in less than two months due to increased inflow from rains and snow as well as dropping the rate of release to facilitate construction. Rapid City worked with the contractor to implement a change order to install a 48 inch diameter bypass pipe to circumvent their spillway construction area and to handle larger inflows during the construction period.

Reclamation also worked with the Army Corp of Engineers (Corps) to request a deviation from standard flood control procedures for Pactola reservoir. This allowed the releases from Pactola Reservoir to be decreased to 20 cfs for two weeks to remove the 48 inch bypass pipe. This operation impounded inflows increasing the reservoir forebay elevation. The deviation included language allowing the dam to impound water into the flood storage space, if necessary. This deviation was approved by the Corps. The release from Pactola Reservoir was dropped to 20 cfs from April 15, 2015 to April 29, 2015 but the reservoir elevation did not reach the flood control pool elevation of 4580.2 feet. Instead, the elevation remained 1.5 feet below top of the conservation pool.

Pactola Reservoir went into Internal Alert on May 11, 2015 after reaching an elevation of 4580.2 feet, which is the top of active conservation elevation. Pactola Reservoir was upgraded to Response Level 1 on May 27, 2015 based on the pool elevation reaching an elevation of 4,585 feet, precipitation forecasts for more rain, and the outlet release increased to 400 cfs. Pactola Reservoir was upgraded to Response Level 2 on May 28, 2015 after reaching first fill elevation (the highest previously recorded reservoir elevation) of 4,585.87 feet, precipitation forecasts for more rain, and the outlet release increased to 500 cfs. Pactola Reservoir reached a new historic high elevation of 4,589.43 feet on June 29, 2015. Pactola Reservoir was downgraded to Response Level 1 on July 15, 2015 when the reservoir elevation dropped to 4584.26 feet. Pactola Reservoir was downgraded to Internal Alert on July 24, 2015 with the reservoir elevation of 4580.29 feet and releases were dropped to 400 cfs. Pactola Reservoir was downgraded to normal operations on July 27, 2105 when the reservoir elevation dropped to 4580.0 feet. Releases from Pactola Dam peaked at 500 cfs from May 28, 2015 to July 21, 2015.

As a side note, inflows to Rapid creek below Pactola Dam were very high during this period and peak flow through Rapid City reached 1010 cfs on July 24, 2015.

MONTHLY STATISTICS FOR WY 2015

Record monthly inflows were recorded in the following months:
Inflows: third highest for October 2014, third highest for January 2015, fifth highest for February 2015, third highest for March 2015, the highest for May 2015, the highest for June 2015, the highest for July 2015, the third highest for August 2015.

Record end of month reservoir content were recorded in the following months:
End of Month Storage: the highest for May, the first highest for June 2015(first fill).

Additional statistical information on Pactola Reservoir and its operations during WY 2015 can be found in Table DKT7 and Figure DKG6.

Table DKT7
Hydrologic Data for WY 2015
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

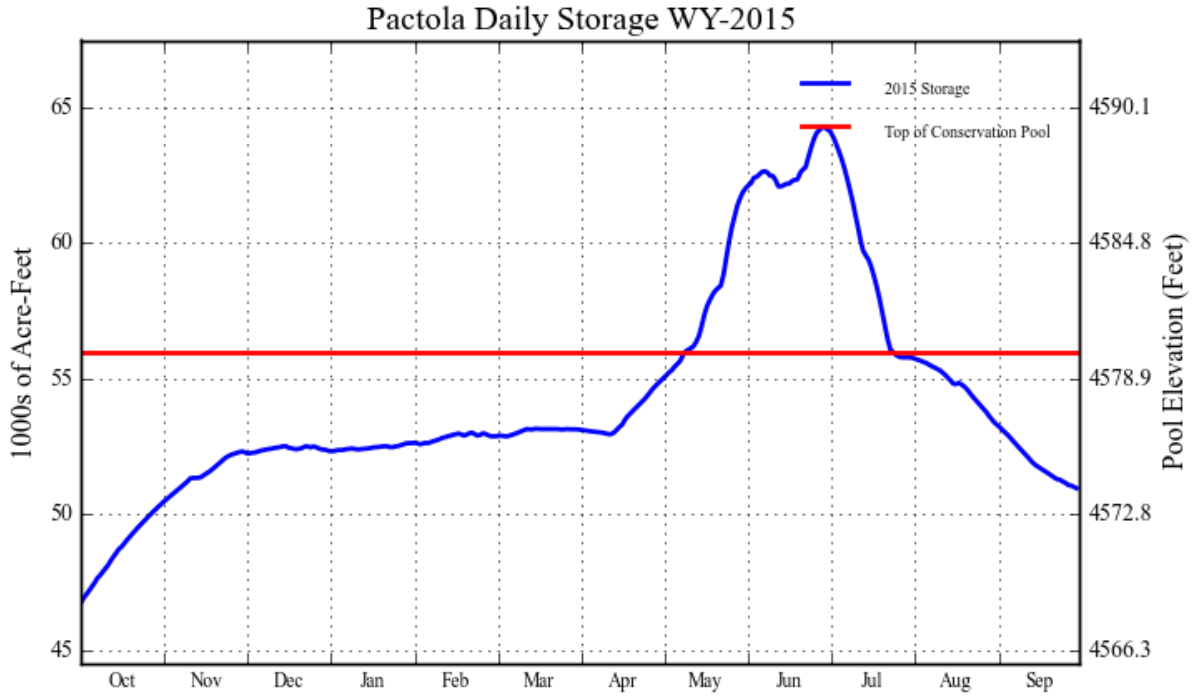
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE (end-of-day)
BEGINNING OF YEAR	4,568.41	46,537	SEP 30, 2014
END OF YEAR	4,574.15	50,952	SEP 30, 2015
ANNUAL LOW	4,568.66	46,537	OCT 01, 2014
ANNUAL HIGH	4,589.43	64,246	JUN 29, 2015
HISTORIC HIGH	4,585.87	61,105	MAY 19, 1965

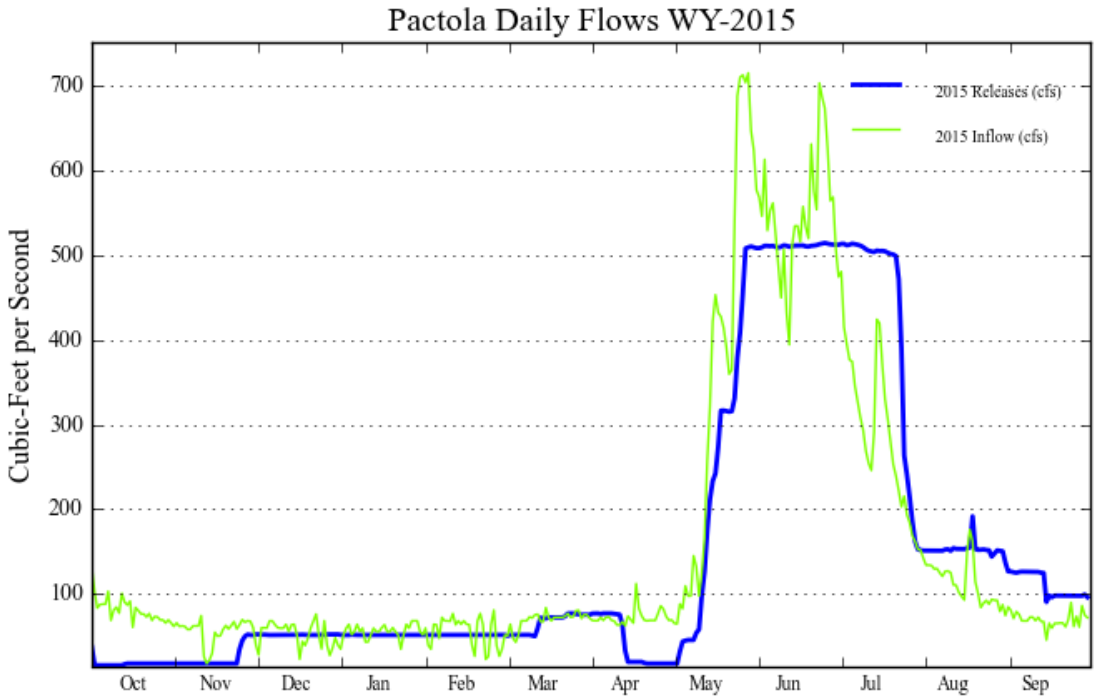
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	109,604	OCT 01-SEP 30	105,189	OCT 01-SEP 30
DAILY PEAK (CFS)	715	MAY 29, 2015	514	JUN 26, 2015
DAILY MINIMUM (CFS)	18	NOV 12, 2014	16	OCT 03, 2014

MONTH	INFLOW		OUTFLOW		EOM CONTENT*	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	4,984	235	1,102	64	50,419	112
NOVEMBER	3,348	210	1,492	105	52,275	116
DECEMBER	3,230	241	3,189	213	52,316	116
JANUARY	3,489	251	3,178	224	52,627	117
FEBRUARY	3,113	223	2,875	224	52,865	117
MARCH	4,245	174	3,989	223	53,121	116
APRIL	4,304	102	2,613	92	54,812	116
MAY	20,865	315	13,825	248	61,852	128
JUNE	32,778	490	30,393	471	64,237	131
JULY	18,094	490	26,562	476	55,769	118
AUGUST	6,981	258	9,380	225	53,370	118
SEPTEMBER	4,173	189	6,591	232	50,952	114
ANNUAL	109,604	301	105,189	287	54,551	118
APRIL-JULY	76,041	359	73,393	359	59,168	123

* 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 AF with an additional surcharge capacity of 57,308 AF. 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 previous survey was done in 1979. Angostura Reservoir accumulated 7,716 AF of sediment since the last survey. Since construction in 1949, Angostura has accumulated 36,867 AF of sediment. The sedimentation rate from 1949 - 2004 has averaged 670 AF per year. The new Area and Capacity Tables were first used in WY 2006.

WY 2015 OPERATIONS SUMMARY

Angostura Reservoir started WY 2015 at an elevation of 3,181.30 feet and storage of 97,807 AF, which is 5.90 feet and 25,241 AF below the top of the conservation pool. Precipitation for WY 2015 was 119 percent of average. Inflows for WY 2015 totaled 278,849 AF (358% percent of the average). Peak inflows occurred in June 2015, totaling 140,064 AF for the month. The peak reservoir elevation for WY 2015 was 3,187.65 feet and storage of 125,135 AF which occurred on June 7, 2015. The minimum elevation for WY 2015 was 3,181.95 feet and storage of 97,807 AF which occurred on October 1, 2014. Angostura Reservoir ended WY 2015 at an elevation of 3,182.09 feet total storage of 100,959 AF, and active storage of 58,754 AF, which is 5.11 feet and 22,089 AF below the top of the conservation pool. Angostura Reservoir ended WY 2015 with 58,754 AF in active storage.

The Angostura Irrigation District had a full water allotment for its irrigators. Releases for irrigation began May 4, 2015 and reached a peak of 242 cfs on August 9, 2015. The irrigation release was terminated on September 25, 2015. Total irrigation releases were 34,602 AF.

An Emergency Management/Security Orientation Exercise was held on April 1, 2015.

The Annual Examination (AE) report for Angostura Dam was completed on July 1, 2015. There are no incomplete SOD Recommendations.

Angostura Reservoir went into Internal Alert status on May 12, 2015 after reaching reservoir elevation of 3186.0 feet. The radial gates were manually operated to drop the reservoir pool down to 3186.0 feet, and then set to match inflows and/or allow the reservoir to slowly fill. After rainstorms saturated the drainage basins, Angostura Reservoir was placed in a Response Level 1 status on June 7, 2015, and reached the peak reservoir elevation of 3187.65 feet. Inflows peaked at 17,769 cfs, with a peak release of 14,397 cfs that same day. The June 2015 inflows were the second highest in 63 years of record, and the July 2015 inflows were fifth highest in 63 years of record. Angostura was taken out of Response Level 1 on June 15, 2015 and placed back into Internal Alert. Angostura Reservoir reached normal operating conditions on July 10, 2015 at a reservoir elevation of 3185.11feet and was removed from Internal Alert status. A total spillway release of 214,368 AF was made between May 12, 2015 and July 10, 2015, along with a controlled release of 8,914 AF through the canal outlet works. After that, releases were coordinated with irrigation releases. As a side note, inflows to Angostura Reservoir were some of the highest on record with May 2015 inflows being 379 percent of average and June 2015 inflows being 754 percent of average.

Angostura Reservoir had a wet fall where inflows were third highest in 63 years of record for the months of October 2014, November 2014 and December 2014. During this time period, a total controlled release of 16,469 AF through the river outlet works was made to bring the reservoir elevation to 3182.5 feet. This was 2.5 feet below the SOP December 1, 2014 target elevation of 3184.0 feet, but the wet fall had recharged inflows so the District made the decision to go lower than the target elevation.

MONTHLY STATISTICS FOR WY 2015

Record monthly inflows were recorded in the following months:
Inflows: third highest for October 2014, third highest for November 2014, third highest for December 2014, fifth highest for January 2015, second highest for June 2015, fifth highest for July 2015.

Record end of month reservoir content were recorded in the following months:
End of Month Storage: no storage records achieved in 2015.

Additional statistical information on Angostura Reservoir and its operations during WY 2015 can be found in Table DKT8 and Figure DKG7.

Table DKT8
Hydrologic Data for WY 2015
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			

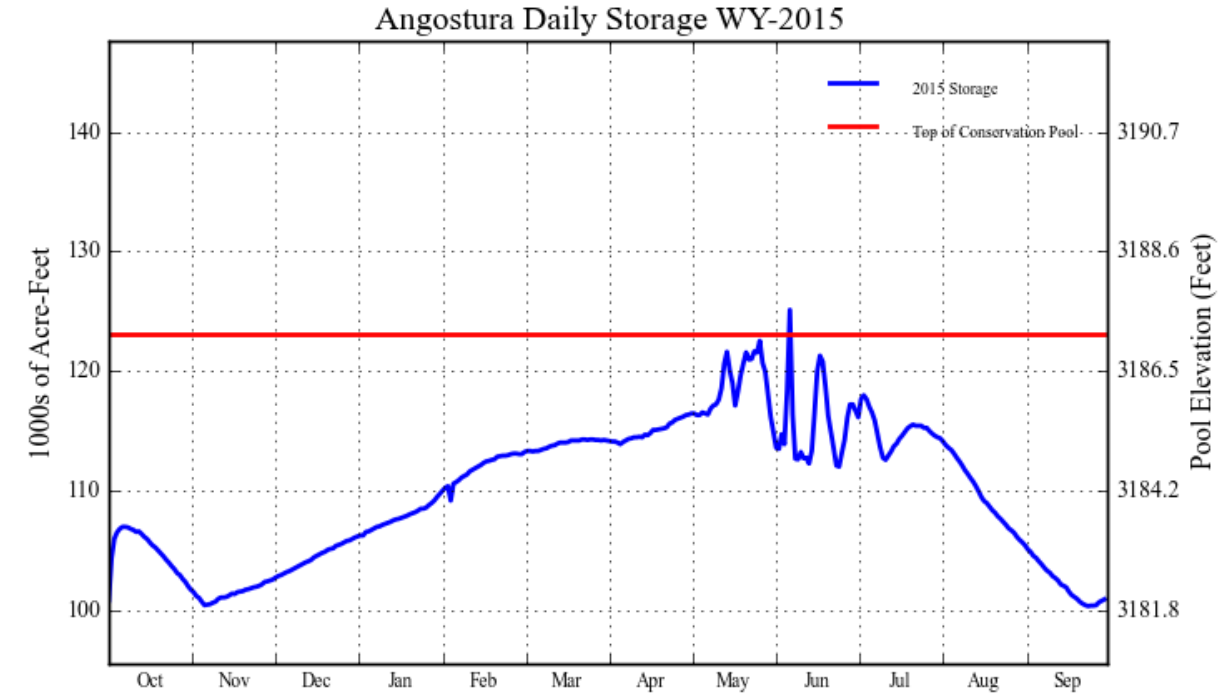
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE (end-of-day)
BEGINNING OF YEAR	3,181.30	97,807	SEP 30, 2014
END OF YEAR	3,182.09	100,959	SEP 30, 2015
ANNUAL LOW	3,181.95	97,807	OCT 1, 2014
ANNUAL HIGH	3,187.65	125,135	JUN 07, 2015
HISTORIC HIGH	3,189.37	**152,228	MAY 20, 1978

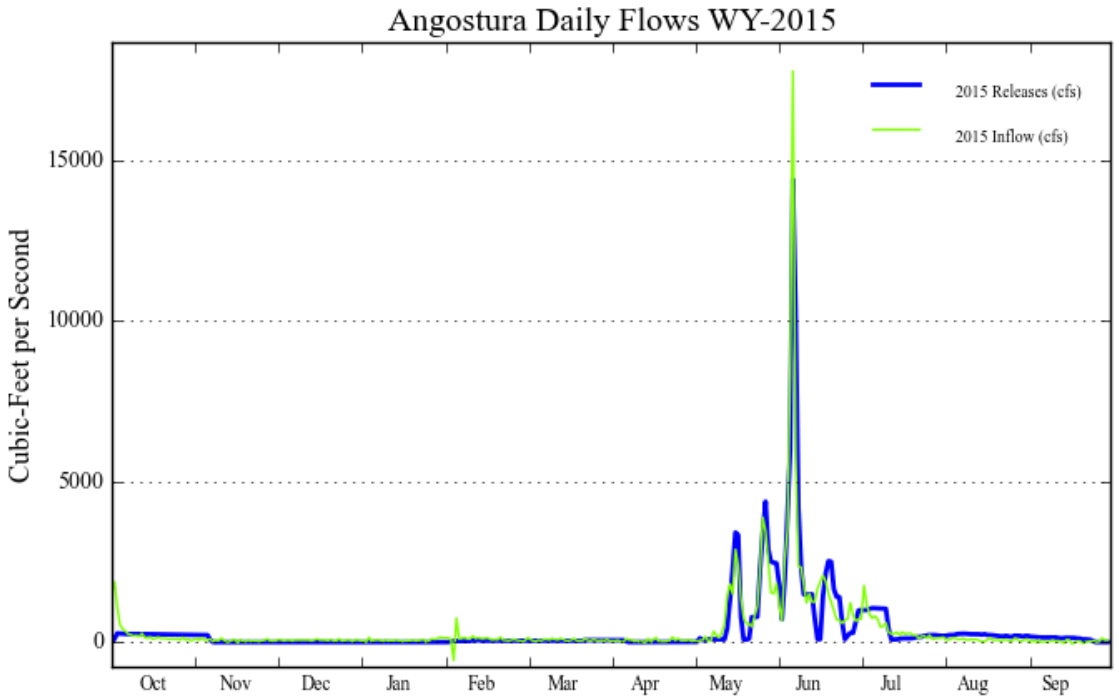
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	278,850	OCT 01-SEP 30	275,671	OCT 01-SEP 30
DAILY PEAK (CFS)	17,769	JUN 07, 2015	14,397	JUN 07, 2015
DAILY MINIMUM (CFS)	-569	FEB 03, 2015	0	NOV 16, 2014

MONTH	INFLOW		OUTFLOW		EOM CONTENT***	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	18,137	959	14,177	1,257	101,767	104
NOVEMBER	3,183	144	2,329	169	102,621	104
DECEMBER	3,610	198	17	4	106,214	106
JANUARY	3,830	182	29	6	110,020	108
FEBRUARY	5,320	121	2,252	256	113,088	108
MARCH	4,204	36	3,023	72	114,269	102
APRIL	3,033	40	956	25	116,346	100
MAY	65,112	379	65,290	477	116,168	97
JUNE	140,064	754	138,995	673	117,237	98
JULY	26,214	396	28,962	184	114,489	103
AUGUST	4,603	153	13,348	104	105,713	104
SEPTEMBER	1,539	154	6,293	117	100,959	104
ANNUAL	278,850	358	275,671	342	109,908	103
APRIL-JULY	234,423	470	234,203	435	116,060	99

** Due to new area-capacity table, the capacity that corresponds to the new historic high elevation is less than a previous high capacity amount (169,020 AF @ Elevation 3189.0 on June 18, 1962)
*** 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 AF (182,079 AF active) and 140,463 AF 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 AF of space in Keyhole Reservoir became effective. The allocated space is used by each organization to store its pro rata share of inflows to Keyhole Reservoir. The flood control space at Keyhole Reservoir is all located above an ungated spillway. The spillway capacity is 11,000 cfs at maximum water surface elevation. The downstream safe channel capacity is 3,000 cfs. Formulas for forecasting inflows have not been developed. Research by the Soil Conservation Service during water years 1992 - 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 previous survey was done in 1978. Keyhole Reservoir accumulated 5,082 AF of sediment since the previous survey. Since construction in 1952, Keyhole has accumulated 12,495 AF of sediment. The sedimentation rate from 1952-2003 has averaged 240 AF per year. The new Area and Capacity Tables were first used in WY 2006.

WY 2015 OPERATIONS SUMMARY

Keyhole Reservoir started WY 2015 at an elevation of 4,097.16 feet and storage of 169,298 AF, which is 2.14 feet and 19,373 AF below the top of the conservation pool. Precipitation for WY 2015 was 84 percent of average. Inflows for WY 2015 totaled 18,997 AF (116 percent of average). Peak inflows occurred in June 2015, totaling 12,342 AF for the month. The peak reservoir elevation for WY 2015 was 4,099.55 feet, storage of 191,033 AF, and occurred on June 27, 2015. The minimum elevation for WY 2015 was 4,096.92 feet, storage of 167,219 AF, which occurred on November 16, 2014. Keyhole Resevoir ended WY 2015 at an elevation of 4,097.04 feet, total storage of 168,256 AF, and active storage of 161,664 AF, which is 2.26 feet and 20,415 AF below the top of the conservation pool.

There were no irrigation releases ordered by the Belle Fourche Irrigation District (BFID) or the Crook County Irrigation District (CCID) for WY 2015.

An Emergency Management/Security Orientation Exercise was held March 25, 2015.

The Annual Examination of Keyhole was conducted on July 29, 2015. There are no incomplete SOD recommendations.

Keyhole Dam went into Internal Alert on May 28, 2015 when the reservoir reached an elevation of 4098.3 feet, and the reservoir inflows also peaked at 1,606 cfs that same day. Controlled releases began on June 5, 2015, with the Corp of Engineers direction, and spillway releases began on June 6, 2015. The peak reservoir elevation of 4099.5 feet occurred on June 27, 2015, and the peak spillway release of 16 cfs occurred on June 28, 2015. Spillway releases continued until July 9, 2015.

In addition to the releases from the uncontrolled spillway, the water control manual calls for gated releases starting at flood pool elevation of 4099.3 feet and stepping up with every 0.1 foot of pool rise. A deviation was put in place to allow gate changes to be reduced to every 0.5 foot of pool rise. The deviation allowed this release to be the minimum release from the main gate instead of using a bypass valve. Also, this does not require the dam tender to remain on site and make frequent gate changes. Once the reservoir entered Internal Alert, Reclamation began releasing 100 cfs out of Keyhole Reservoir in anticipation of reaching the flood pool elevation of 4099.3 feet due to additional rainfall in early June 2015. According to the Water Control Plan Deviation, the 100 cfs release is an acceptable release to evacuate the flood pool until a reservoir elevation of 4,100 feet is reached.

A controlled release of 100 cfs was made through the river outlet works from June 5, 2015 through August 12, 2015. The release was then dropped to 75 cfs thru September 3, 2015, and subsequently continued at 53 cfs until September 30, 2015 to evacuate additional water to meet winter target elevations.

Keyhole Dam remained in Internal Alert status until September 1, 2015. A total uncontrolled spillway release of 375 AF and a controlled release of 16,841 AF were made by Reclamation while in Internal Alert.

MONTHLY STATISTICS FOR WY 2015

Record monthly inflows were recorded in the following months:
Inflows: fifth highest for December 2014, third highest for January 2015, second highest for June 2015, fifth highest for July 2015, fifth lowest in September 2015.

Record end of month reservoir content were recorded in the following months:
End of Month Storage: third highest for October 2014, second highest for November 2014, second highest for December 2014, second highest for January 2015, second highest for February 2015, the highest for May, the highest for June, the highest for July, scond highest for August 2015, fifth highest in September 2015.

Additional statistical information on Keyhole Reservoir and its operations during WY 2015 can be found in Table DKT9 and Figure DKG8.

Table DKT9
Hydrologic Data for WY 2015
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

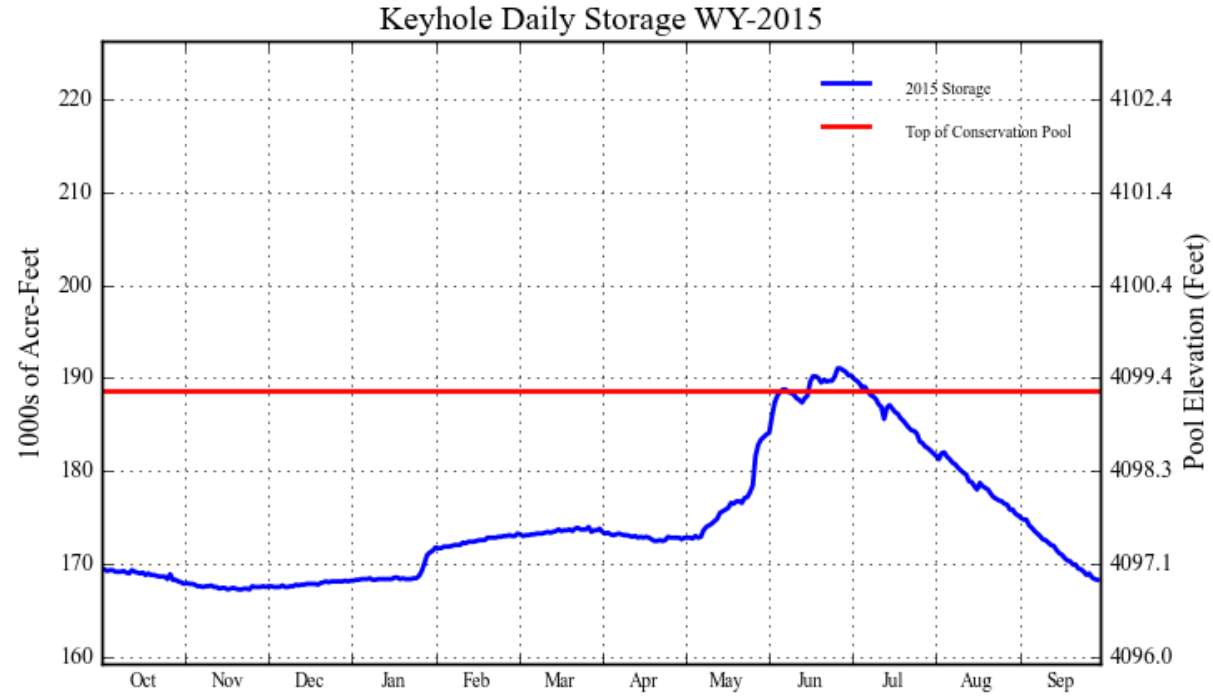
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE (end-of-day)
BEGINNING OF YEAR	4,097.16	169,298	SEP 30, 2014
END OF YEAR	4,097.04	168,256	SEP 30, 2015
ANNUAL LOW	4,096.92	167,219	NOV 16, 2014
ANNUAL HIGH	4,099.55	191,033	JUN 27, 2015
HISTORIC HIGH	4,100.38	210,222	MAY 21, 1978

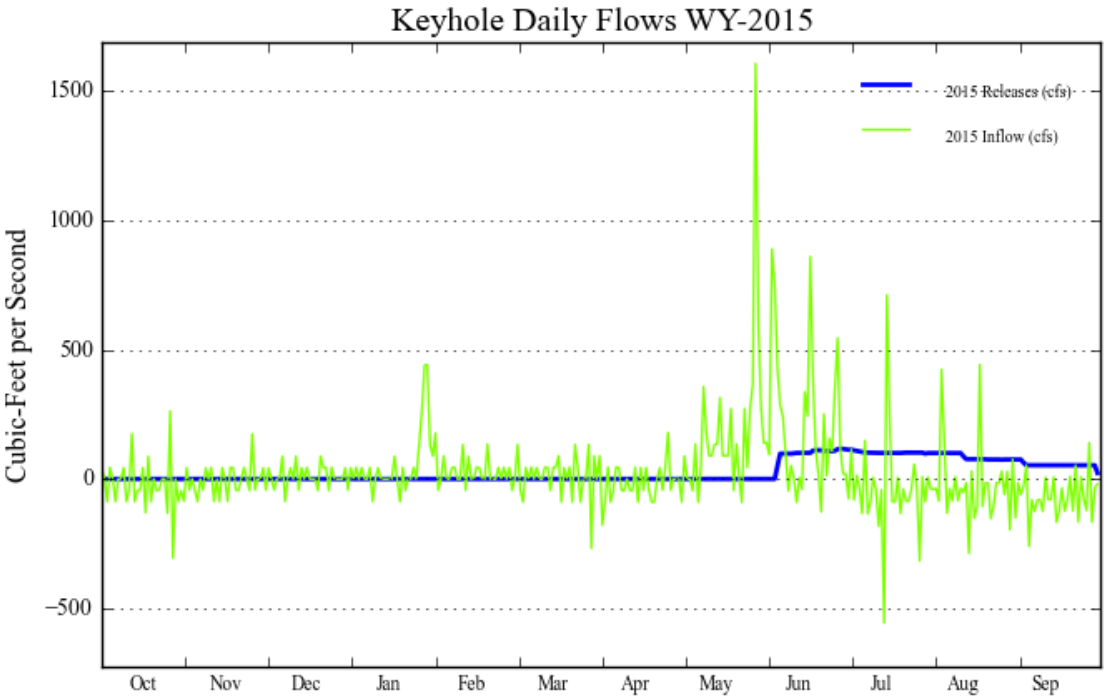
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	18,996	OCT 01-SEP 30	20,038	OCT 01-SEP 30
DAILY PEAK (CFS)	1,606	MAY 28, 2015	117	JUN 28, 2015
DAILY MINIMUM (CFS)	0	*	0	*

MONTH	INFLOW		OUTFLOW		EOM CONTENT**	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	-1,473	NA	0	0	167,825	182
NOVEMBER	-345	NA	0	0	167,480	182
DECEMBER	687	480	0	0	168,167	183
JANUARY	3,577	756	0	0	171,744	185
FEBRUARY	1,235	44	0	0	172,979	181
MARCH	618	9	0	0	173,597	171
APRIL	-795	NA	0	0	172,802	170
MAY	10,834	217	0	0	183,636	175
JUNE	12,342	371	5,325	283	190,653	179
JULY	-2,182	NA	6,305	160	182,166	179
AUGUST	-1,578	NA	5,211	144	175,377	182
SEPTEMBER	-3,923	NA	3,198	432	168,256	179
ANNUAL	18,997	116	20,039	147	174,557	179
APRIL-JULY	20,199	203	11,630	141	182,314	176

* 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. Shadehill Reservoir has a dead and conservation capacity totaling 120,172 AF with an additional exclusive flood control capacity of 230,004 AF and a surcharge capacity of 119,560 AF. Flood control space is all located above the crest of an ungated 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 AF of space between elevations 2260 feet and 2272 feet 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 Shadehill 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 an elevation of 2260 feet and 2272 feet, and because the Corps of Engineers has constructed Bowman Haley Reservoir upstream from Shadehill Reservoir with 53,800 AF 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 of 2260 feet and 2272 feet revert to Reclamation. By a revised field working agreement dated May 15, 1972, it was agreed that the space between an elevation of 2260 feet and 2272 feet (51,500 AF) be reallocated to conservation use. However, space below an elevation of 2272 feet will continue to be evacuated before the start of the spring runoff, but to a lesser extent than in the past.

WY 2015 OPERATIONS SUMMARY

Shadehill Reservoir started WY 2015 at an elevation of 2,271.80 feet and storage of 119,171 AF, which is 0.20 feet and 1,001 AF below the top of the conservation pool. Precipitation for WY 2015 was 93 percent of average. Inflows for WY 2015 totaled 58,580 AF (76 percent of the average). Peak inflows occurred in June 2015, totaling 10,400 AF for the month. The peak reservoir elevation for WY 2015 was 2,271.91 feet, storage of 119,721 AF, which occurred on October 5, 2014. The minimum elevation for WY 2015 was 2267.81 feet, storage of 100,324 AF, which occurred on January 25, 2015. Shadehill Reservoir ended WY 2015 at an elevation of 2,270.44 feet total storage of 112,506 AF, and active storage of 68,637 AF, which is 1.56 feet and 7,666 AF below the top of the conservation pool.

All project irrigation demands were met from river maintenance releases. There were no storage releases for irrigation needed during WY 2015.

An Emergency Action Plan Orientation Meeting was conducted on March 24, 2015.

The Annual Exam for Shadehill Dam was conducted on July 14, 2015.

There are no incomplete SOD Recommendations.

Shadehill Reservoir went into Internal Alert status on August 27, 2014 after exceeding reservoir elevation of 2272.0 feet. The event actually began in water year 2014, but Shadehill Reservoir remained in Internal Alert status until November 6, 2014 which carried the event into water year 2015. The October 2014 inflow was the fourth highest in 62 years of record. Releases from Shadehill Dam peaked at 202 cfs on October 23, 2014 through the river outlet works while in Internal Alert Status. During this time period in fiscal year 2015, a total controlled release of 14,178 AF was made.

The highest controlled release from Shadehill Dam started on November 6, 2014 at 250 cfs and continued until November 19, 2014 to evacuate some water before setting a winter release at 75 cfs. The December 2014 inflow was the highest in 62 years of record.

MONTHLY STATISTICS FOR WY 2015

Record monthly inflows were recorded in the following months:
Inflows: fourth highest for October 2014, the highest for December.

Record end of month reservoir content were recorded in the following months:
End of Month Storage: no storage records achieved in 2015.

Additional statistical information on Shadehill Reservoir and its operations during WY 2015 can be found on Table DKT10 and Figure DKG9.

TABLE DKT10
HYDROLOGIC DATA FOR WY 2015
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

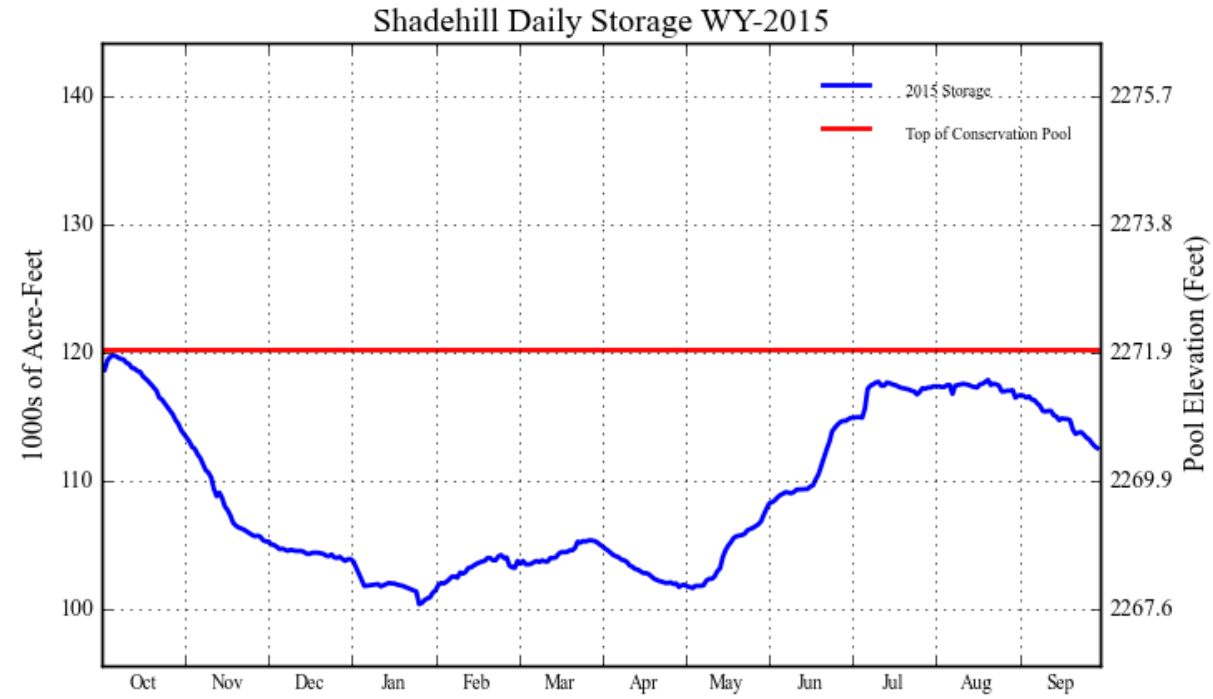
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE (end-of-day)
BEGINNING OF YEAR	2,271.80	119,171	SEP 30, 2014
END OF YEAR	2,270.44	112,506	SEP 30, 2015
ANNUAL LOW	2,267.81	100,324	JAN 25, 2015
ANNUAL HIGH	2,271.91	119,721	OCT 05, 2014
HISTORIC HIGH	2,297.90	318,438	APR 10, 1952

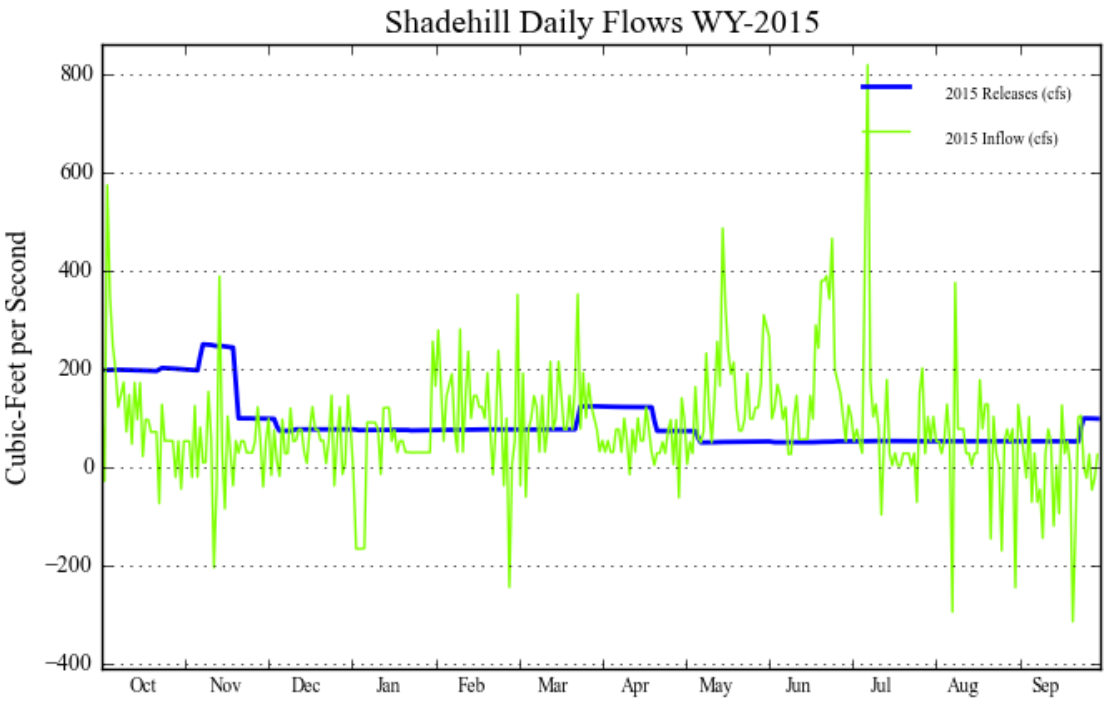
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	58,582	OCT 01-SEP 30	65,262	OCT 01-SEP 30
DAILY PEAK (CFS)	821	JUL 08, 2015	251	NOV 07, 2014
DAILY MINIMUM (CFS)	-315	SEP 21, 2015	50	MAY 08, 2015

MONTH	INFLOW		OUTFLOW		EOM CONTENT**	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	6,657	578	12,212	311	113,616	104
NOVEMBER	2,401	269	10,803	325	105,214	98
DECEMBER	3,469	455	4,843	191	103,840	98
JANUARY	2,172	221	4,645	192	101,397	97
FEBRUARY	6,051	184	4,245	198	103,203	98
MARCH	7,382	31	5,418	50	105,167	89
APRIL	2,872	14	6,372	36	101,667	84
MAY	9,059	79	3,428	33	107,298	88
JUNE	10,400	109	3,048	35	114,635	93
JULY	5,859	156	3,250	58	117,234	97
AUGUST	2,469	611	3,257	74	116,446	99
SEPTEMBER	-201	NA	3,739	100	112,506	99
ANNUAL	58,582	76	65,262	86	118,519	95
APRIL-JULY	28,180	61	16,098	38	110,209	90

* 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 AF (169,790 AF 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 to May 1977, the active capacity of Belle Fourche Reservoir was temporarily limited to 160,300 AF at an elevation of 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 provide 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 Belle Fourche Reservoir and stored. If all of these rights are not needed, the District can divert flows into Belle Fourche 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 previous survey was done in 1949. Belle Fourche Reservoir accumulated 19,204 AF of sediment since the 1949 survey and 36,364 AF since the original survey in 1910. The sedimentation rate from 1910 to 2006 averages 375 AF per year. The new Area and Capacity Tables were first used in WY 2008.

WY 2015 OPERATIONS SUMMARY

Belle Fourche Reservoir started WY 2015 at an elevation of 2,967.32 feet and storage of 116,661 AF, which is 7.68 feet and 56,212 AF below the top of the conservation pool. Precipitation for WY 2015 was 125 percent of average. Inflows for WY 2015 totaled 92,275 AF, which was 79 percent of average. Peak inflows occurred in April 2015, totaling 14,048 AF for the month. The peak reservoir elevation for WY 2015 was 2,974.63 feet, storage of 169,910 AF, which occurred on May 9, 2015. The minimum elevation for WY 2015 was 2,966.19 feet, storage of 109,541 AF, which occurred on September 24, 2015. Belle Fourche Reservoir ended WY 2015 at an elevation of 2,966.60 feet, total storage of 112,086 AF, and active storage of 109,003 AF, which is 8.4 feet and 60,787 AF below the top of the conservation pool.

The BFID had a water allotment of 18 inches for its irrigators.

The North Canal and South Canals were turned on April 13, 2015. Releases reached a peak of 350 cfs on July 24, 2015 and August 3, 2015 for North Canal. The South Canal was shut off September 25, 2015. The North Canal was shut off September 25, 2015. Irrigation releases for the 2015 season were North Canal 56,923 AF, South Canal 39,963 AF, and Inlet Canal-Johnson Lateral 4,933 AF for a total of 101,819 AF.

An Emergency Management/Security Orientation Exercise was conducted March 12, 2015.

The Annual Examination of Belle Fourche Reservoir was conducted on July 8, 2015 with a followup on September 29, 2015. There are no incomplete SOD recommendations.

Inlet Canal was shut down from the end of November 2014 to the middle of February 2015. It was shut down again at the end of February 2015, and turned back on the middle of March 2015.

Belle Fourche Reservoir went into Internal Alert status on April 18, 2015 after reaching a reservoir elevation of 2974.0 feet (Top of Active Conservation Elevation is 2975.0 feet). Releases from Belle Fourche Dam were made through the North and South Canal's beginning on April 13, 2015, and peaked at 213 cfs on May 3, 2015. Belle Fourche Reservoir reached normal operating conditions on July 6, 2015 and was removed from Internal Alert status. A total controlled release of 24,402 AF was made from April 13, 2015 through July 6, 2015. After that, releases were coordinated with irrigation releases.

Inclinometer readings were taken twice this year at high and low reservoir elevation as required by the periodic monitoring schedule.

The Belle Fourche Reservoir Road Maintenance Contract, Number R15PX00549, was awarded to Bachman Construction LLC for $84,285.50. During the 2015 recreation season the contractor bladed the Belle Fourche Reservoir roads on three separate dates. The contract was completed on November 3, 2015.

The Belle Fourche Reservoir Middle Point Road Construction Contract, Number R15PC00111, was awarded to J W Services LLC for $654,495.00. The contractor has constructed Middle Point Road Loop turnouts and culverts as well as constructed a parking area at Tequila Beach on the Belle Fourche Reservoir. Ditch tilling and seeding will complete the contract in the spring.

The Belle Fourche Reservoir Gate House Rehabilitation Construction Contract is funded by the Belle Fourche Irrigation District with financial support from the South Dakota State Water Resource Management System program through a five million dollar grant-loan package. Belle Fourche Irrigation District has hired RESPEC Consulting LLC to oversee design and construction of the rehabilitation project. The contract was awarded to RCS Construction Inc. for $569,000. The contract is projected to be completed by April 15, 2016. The contract requires that at least one of the North Gatehouse gates is operable by February 15, 2016 to begin making spring releases.

MONTHLY STATISTICS FOR WY 2015

Record monthly inflows were recorded in the following months:
Inflows: third lowest for July 2015, fifth highest for August 2015, fifth highest for September 2015.

Record end of month reservoir content were recorded in the following months:
End of Month Storage: fourth highest for October 2014, third highest for November 2014, third lowest for December 2014, third lowest for January 2015.

Additional statistical information on Belle Fourche Reservoir and its operations during 2015 can be found in Table DKT11 and Figure DKG10.

Table DKT11
Hydrologic Data for WY 2015
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			

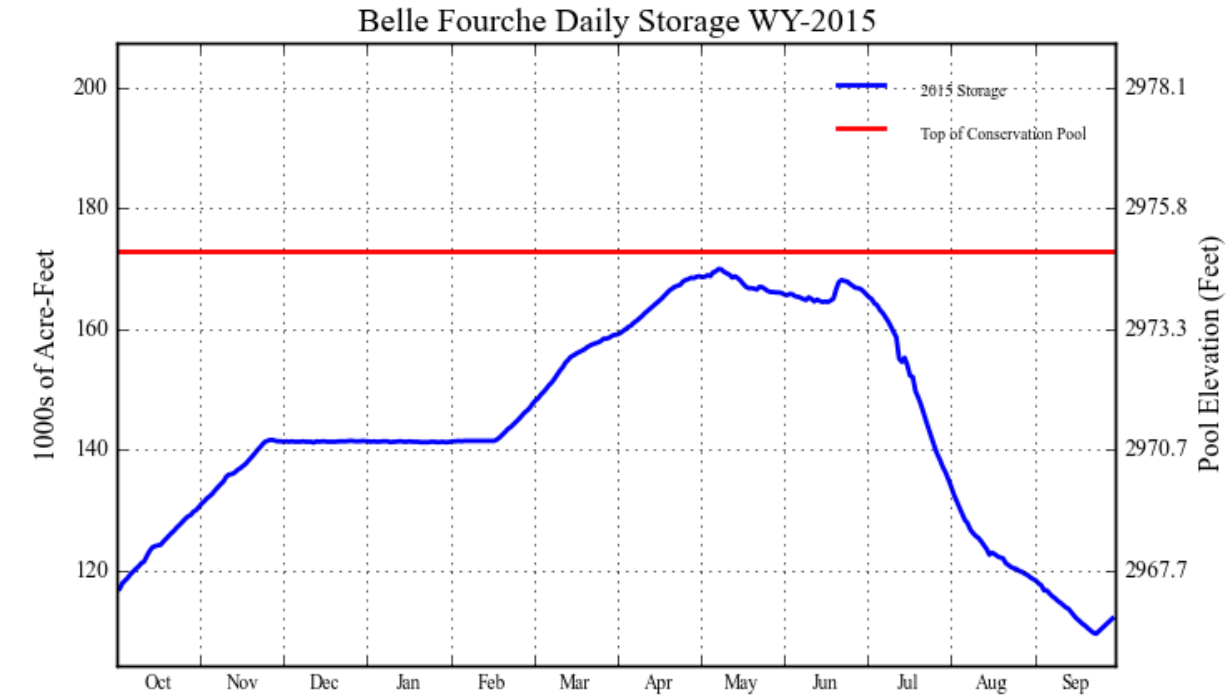
STORAGE-ELEVATION DATA	ELEVATION (FT)	STORAGE (AF)	DATE (end-of-day)
BEGINNING OF YEAR	2,967.32	116,661	SEP 30, 2014
END OF YEAR	2,966.60	112,086	SEP 30, 2015
ANNUAL LOW	2,966.19	109,541	SEP 24, 2015
ANNUAL HIGH	2,974.63	169,910	MAY 09, 2015
HISTORIC HIGH	2,975.92	196,792	MAY 30, 1996

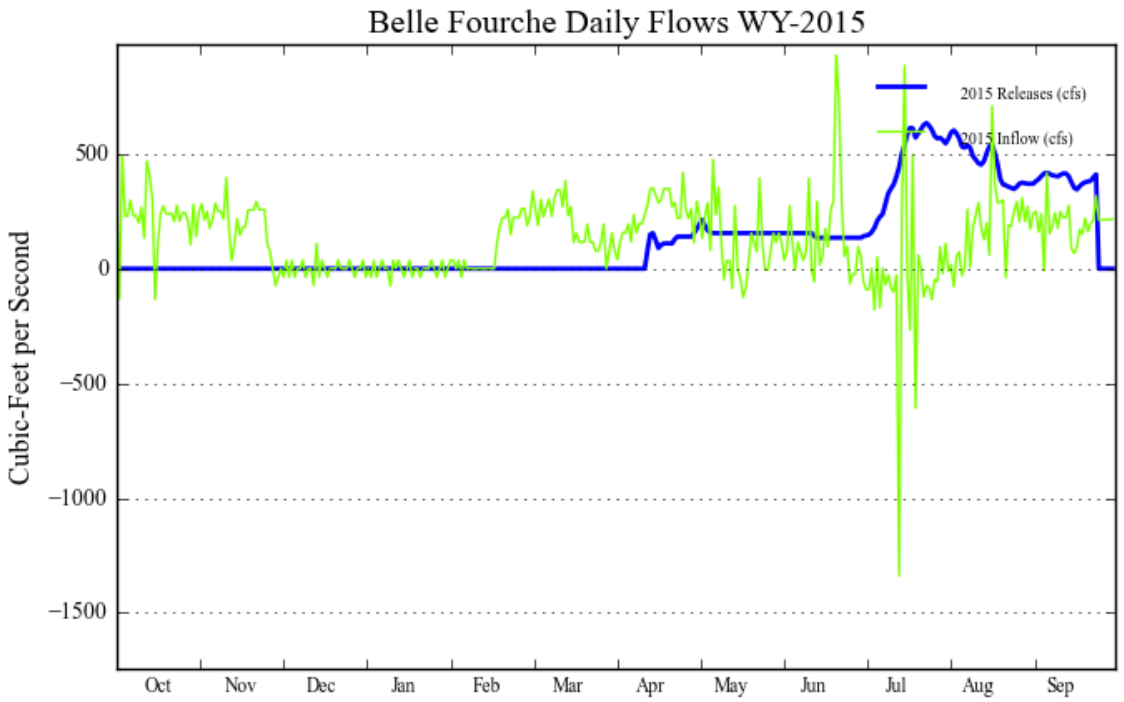
INFLOW-OUTFLOW DATA	INFLOW	DATE	OUTFLOW	DATE
ANNUAL TOTAL (AF)	92,275	OCT 01-SEP 30	96,850	OCT 01-SEP 30
DAILY PEAK (CFS)	930	JUN 21, 2015	635	JUL 24, 2015
DAILY MINIMUM (CFS)	-1,338	JUL 14, 2015	0	*

MONTH	INFLOW		OUTFLOW		EOM CONTENT**	
	AF	% OF AVG	AF	% OF AVG	AF	% OF AVG
OCTOBER	13,901	131	59	11	130,503	176
NOVEMBER	10,895	112	0	N/A	141,398	170
DECEMBER	0	N/A	0	N/A	141,398	154
JANUARY	-73	N/A	0	N/A	141,325	140
FEBRUARY	5,163	52	0	N/A	146,488	132
MARCH	12,354	78	0	N/A	158,842	126
APRIL	14,048	103	4,492	972	168,398	121
MAY	7,479	50	9,854	134	166,023	113
JUNE	9,077	76	8,532	52	166,577	117
JULY	-3,457	N/A	26,870	73	136,250	125
AUGUST	11,025	446	28,407	81	118,868	155
SEPTEMBER	11,863	248	17,294	108	112,086	174
ANNUAL	92,275	79	96,850	85	113,035	108
APRIL-JULY	27,147	61	49,739	82	157,304	117

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

Figure DKG10
Belle Fourche Reservoir





OPERATING PLANS
FOR

WATER YEAR 2016

FOR RESERVOIRS

(CLARK CANYON, CANYON FERRY, HELENA VALLEY, SUN RIVER, LAKE ELWELL, MILK RIVER AND BIGHORN LAKE AND YELLOWTAIL POWERPALNT)

UNDER THE RESPONSIBILITY

OF THE

MONTANA AREA OFFICE

OPERATING PLANS FOR WY 2016

Clark Canyon Reservoir

Three operating plans were prepared for water year 2016 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. 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 AF at an elevation of 5542.10 feet 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 AF at an elevation of 5546.10 feet during late May or early June.

(3) During May through 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 AF at an elevation of 5556.50 feet.

(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 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.

Storage in Lima Reservoir, a private facility located upstream of Clark Canyon Reservoir, ended WY 2015 at an elevation of 6560.96 feet with a storage content of 12,154 AF, 40 percent of the 30 year average.

Depending on snowpack and storage conditions Lima Reservoir may store much of the early season runoff during 2016 from the Red Rock River drainage.

On September 8, 2015, the East Bench Unit Joint Board held a meeting to discuss winter releases. Reclamation provided reservoir operation plans with a minimum, maximum, and most probable inflows. Reclamation's September 2015 outlook showed a winter release of 50 cfs. However, with a dry winter inflow forecast and the possibility of another dry spring, Reclamation discussed supporting a winter release of 35 cfs. MTFWP supported a higher winter release but understood the conditions of the Beaverhead River Basin.

In response, Reclamation's letter dated September 29, 2015 stated that under Article 6.g and Exhibit D of Reclamation's Contract Number's 069F670010 and 069F6700009 with the East Bench Irrigation District and Clark Canyon Water Supply Company includes provisions which encourage working with third parties such as the State of Montana to enhance the environmental health of the Beaverhead River. Measures that could be considered appropriate include, among other considerations, storing water for enhancement purposes, provided the minimum release from Clark Canyon Reservoir is not less than 25 cfs. In accordance with these contracts, Reclamation concurred that a reduction in winter flows from 35 cfs to 30 cfs for the purpose of storing water for a spring 2016 flushing flow is acceptable, provided all parties are in mutual agreement. This reduction will result in approximately 2,100 AF of banked water for a spring flushing flow if needed. A memorandum of understanding will be created to identify and determine the specific requirements of the flushing flow. Therefore the winter release from Clark Canyon Dam was set at 30 cfs on October 1, 2015.

The total annual inflow to Clark Canyon Reservoir during 2015 was approximately 131,700 AF, 67 percent of the 30 year average. Storage on September 30, 2015, was 55,034 AF at an elevation of 5515.90 feet, 72 percent of the 30 year average.

Clark Canyon Reservoir is anticipated to fill during 2016 under the maximum probable runoff condition and is expected to fill by late May 2016. The reservoir water level under the most probable runoff condition is anticipated to peak in early April 2016, approximately 10.3 feet below the top of the joint-use pool. The reservoir water level under the minimum probable runoff condition is expected to peak in early April 2016, approximately 13.6 feet below the top of the joint-use pool.

Under the most, minimum, and maximum plans, the fall/winter release was set at 30 cfs as determined collaboratively by the East Bench Unit Joint Board and Reclamation. The Montana Fish Wildlife and Parks participated in the discussions and provided comments. Irrigation shortages are expected to occur under the minimum plan and likely to occur under the most probable plan.

The most probable October 2015 through February 2016 inflows were estimated near the 20 percentile inflows or inflows that are historically exceeded 80 percent of the time. March 2016 through May 2016 inflows was estimated near the 25 percentile or inflows that are historically exceeded 75 percent of the time. Inflows during June 2016 through September 2016 were estimated near the 30 percentile inflows or inflows that are historically exceeded 70 percent of the time.

The minimum probable October 2015 through March 2016 inflows were estimated near the 10 percentile inflow or inflows that are historically exceeded 90 percent of the time. Inflows during April 2016 through September 2016 were estimated near the 15 percentile inflows or inflows that are historically exceeded 85 percent of the time.

The maximum probable October 2015 through December 2015 inflows were estimated near the 30 to 35 percentile inflows or inflows that are historically exceeded 70 to 65 percent of the time. The maximum probable January 2016 through February 2016 inflows were estimated to equal 50 percentile inflows or inflows that are historically exceeded 50 percent of the time. The March 2016 through September 2016 inflows were estimated to equal 75 percentile inflows or inflows that are historically exceeded 25 percent of the time.

TABLE MTT12
CLARK CANYON RESERVOIR OPERATING PLAN
Based on October 1 2015 Inflow Estimates

2016 Minimum Probable Plan

Clark Canyon Reservoir		Initial Cont Elev	55.0 kaf 5515.90 ft			Maximum Cont Elev	310.1 kaf 5569.57 ft			Minimum Cont Elev	10.0 kaf 5489.22 ft		
2015		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	9.6	10.7	10.2	10.0	8.7	10.4	8.4	7.6	13.0	10.9	8.5	8.5	116.5
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	0.0
River Release	kaf	1.8	1.8	1.8	1.8	1.7	1.8	1.8	25.2	36.9	46.7	31.4	8.8	161.5
River Release	cfs	30	30	30	30	30	30	30	410	620	760	511	148	
Min Release	cfs	30	30	30	30	30	30	30	400	600	700	400	290	
Excess Release	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
Gordon Spring Gain	kaf	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	18.0
End-Month Elevation	ft	5518.75	5521.73	5524.33	5526.71	5528.63	5530.86	5532.49	5527.98	5520.86	5506.10	5489.55	5489.22	
End-Month Content	kaf	62.8	71.7	80.1	88.3	95.3	103.9	110.5	92.9	69.0	33.2	10.3	10.0	
Net Change Content	kaf	7.8	8.9	8.4	8.2	7.0	8.6	6.6	-17.6	-23.9	-35.8	-22.9	-0.3	-45.0
Diversions	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
East Bench Demand	kaf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.09	10.21	13.81	5.80	0.77	38.68
East Bench Req Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	18.6	25.1	10.5	1.4	70.3
CCWSCO Tot Demand	kaf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.74	24.75	30.57	26.72	5.20	103.98
CCWSCO Deliv	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	15.6	19.3	16.8	3.3	65.5
Non-proj Demand	kaf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.44	6.66	5.99	8.88	4.44	28.41

2016 Most Probable Plan

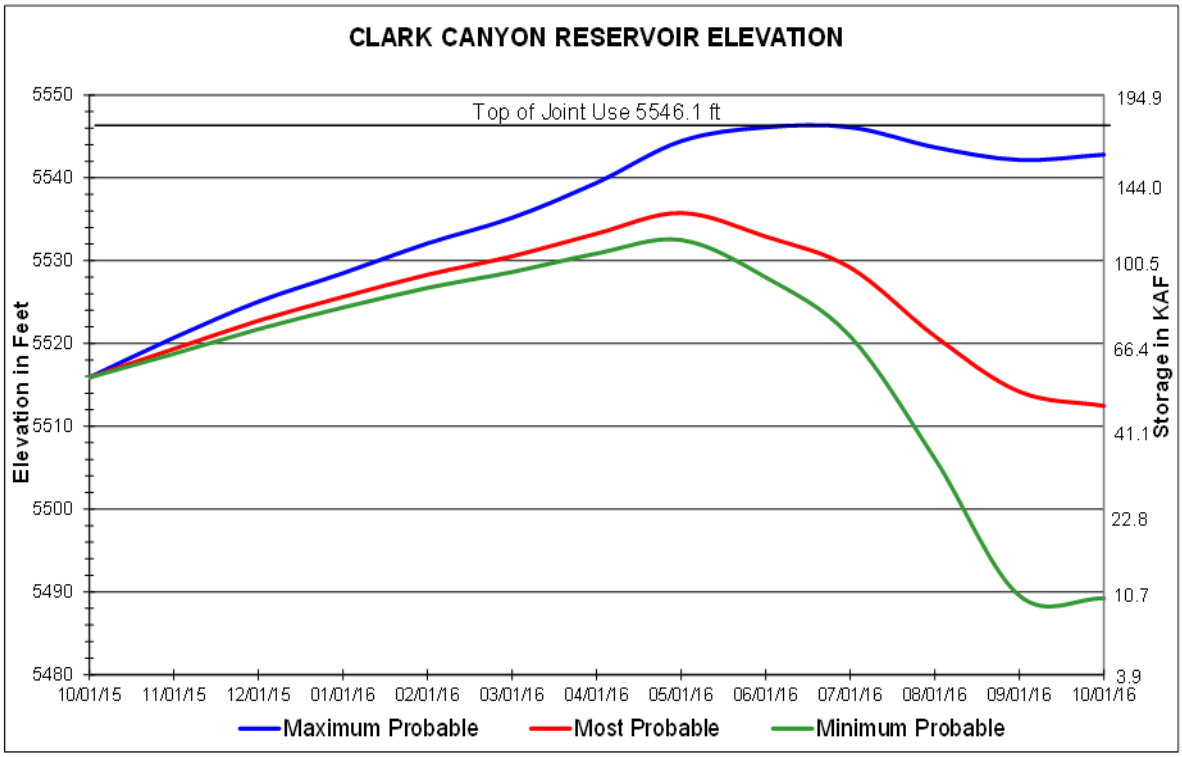
Clark Canyon Reservoir		Initial Cont Elev	55.0 kaf 5515.90 ft			Maximum Cont Elev	310.1 kaf 5569.57 ft			Minimum Cont Elev	10.0 kaf 5489.22 ft		
2015		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	11.3	12.2	11.4	11.4	10.2	12.9	12.5	13.0	22.0	18.5	13.0	13.2	161.6
Evaporation 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
River Release	kaf	1.8	1.8	1.8	1.8	1.7	1.8	1.8	25.2	36.9	46.7	31.4	17.3	170.0
River Release	cfs	30	30	30	30	30	30	30	410	620	760	511	291	
Min Release	cfs	30	30	30	30	30	30	30	400	600	700	500	290	
Excess Release	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
Gordon Spring Gain	kaf	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	18.0
End-Month Elevation	ft	5519.34	5522.75	5525.63	5528.30	5530.53	5533.26	5535.75	5532.90	5529.16	5520.89	5514.18	5512.46	
End-Month Content	kaf	64.5	74.9	84.5	94.1	102.6	113.7	124.4	112.2	97.3	69.1	50.7	46.6	
Net Change Content	kaf	9.5	10.4	9.6	9.6	8.5	11.1	10.7	-12.2	-14.9	-28.2	-18.4	-4.1	-8.4
Diversions	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
East Bench Demand	kaf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.09	10.21	13.81	5.80	0.77	38.68
East Bench Req Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	18.6	25.1	10.5	1.4	70.3
CCWSCO Tot Demand	kaf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.74	24.75	30.57	26.72	5.20	103.98
CCWSCO Deliv	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	15.6	19.3	16.8	3.3	65.5
Non-proj Demand	kaf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.44	6.66	5.99	8.88	4.44	28.41

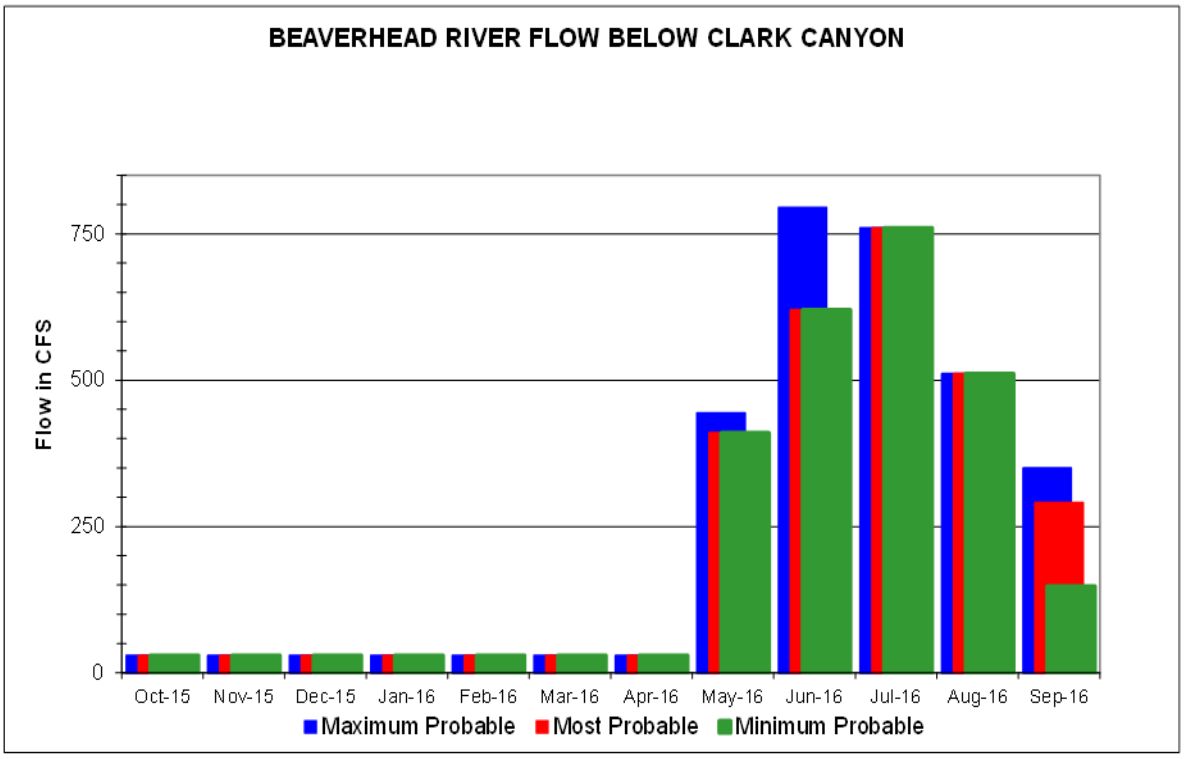
2016 Maximum Probable Plan

Clark Canyon Reservoir		Initial Cont Elev	55.0 kaf 5515.90 ft			Maximum Cont Elev	310.1 kaf 5569.57 ft			Minimum Cont Elev	10.0 kaf 5489.22 ft		
2015		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	15.3	15.8	14.1	15.8	14.8	21.0	26.6	35.8	47.3	34.4	23.8	24.0	288.7
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	0.0
River Release	kaf	1.8	1.8	1.8	1.8	1.7	1.8	1.8	27.3	47.3	46.7	31.4	20.8	186.0
River Release	cfs	30	30	30	30	30	30	30	444	795	760	511	350	
Min Release	cfs	30	30	30	30	30	30	30	400	600	700	500	350	
Excess Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	10.4	0.0	0.0	0.0	12.5
Gordon Spring Gain	kaf	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	18.0
End-Month Elevation	ft	5520.69	5525.05	5528.49	5532.08	5535.18	5539.40	5544.44	5546.11	5546.11	5543.69	5542.16	5542.81	
End-Month Content	kaf	68.5	82.5	94.8	108.8	121.9	141.1	165.9	174.4	174.4	162.1	154.5	157.7	
Net Change Content	kaf	13.5	14.0	12.3	14.0	13.1	19.2	24.8	8.5	0.0	-12.3	-7.6	3.2	102.7
Diversions	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
East Bench Demand	kaf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.09	10.21	13.81	5.80	0.77	38.68
East Bench Req Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	18.6	25.1	10.5	1.4	70.3
CCWSCO Tot Demand	kaf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.74	24.75	30.57	26.72	5.20	103.98
CCWSCO Deliv	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	15.6	19.3	16.8	3.3	65.5
Non-proj Demand	kaf	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.44	6.66	5.99	8.88	4.44	28.41

FIGURE MTG13

CLARK CANYON RESERVOIR





WATER YEAR 2016

Canyon Ferry Lake and Powerplant

Three operating plans were prepared for 2016 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 & Light, MT (PPL-MT), which was recently sold to Northwestern Energy in September 2014. The prior owner was Montana Power Company. Coordination is specified in the formal Agreement to Coordinate Hydroelectric Power Operations dated March 1972. Flood control operations will be coordinated with the Corps of Engineers 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 of storage between elevations of 3797.00 feet (1,891,888 AF) and 3800.00 feet (1,992,977 AF) 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 3780.00-3782.00 feet (1,358,973 to 1,416,767 AF) by the following April 1. Each month inflows are re-evaluated 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 Number 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, Northwestern Energy will try to limit the Hebgen drawdown during these months in an effort to maintain Canyon Ferry Lake below an elevation of 3794.00 feet (1,792,884 AF) after December 1. Storage below an elevation of 3794.00 feet (1,792,884 AF) 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 an elevation of 3797.00 feet (1,891,888 AF) 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 3800.00 feet (1,992,997 AF).

(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 3770.00 feet (1,097,599 AF). In a series of dry years, the pool may be drawn as low as elevation 3728.00 feet (396,031 AF) to meet firm power generation requirements and satisfy Northwestern Energy prior water rights. If storage is drawn below elevation 3728.00 feet (396,031 AF), 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 an elevation of 3728.00 feet (396,031 AF), 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 Northwestern Energy.

The end of the WY 2015 resulted in a reservoir storage content of 1,486,015 AF at an elevation of 3784.30 feet, about 2.7 feet higher than the 30 year average. September 2015 inflows were 77 percent of the 30 year average, while the monthly average release to the river was 3,550 cfs.

The most probable October 2015 and November 2015 inflows were estimated based upon several near record low inflows as these values are lower than the 10 percentile inflow. The December 2015 through September 2016 inflows were gradually increased to approximately the 30 percentile or inflows that historically have been exceeded 70 percent of the time.

Under the minimum probable October 2015 through March 2016 inflows were estimated based upon the average of the record low inflows. The minimum probable March 2016 through September 2016 inflows were estimated to equal 10 percentile or inflows that historically have been exceeded 90 percent of the time.

Under the maximum probable October 2015 and November 2015 inflows were estimated at the 25 percent of average or inflows that historically have been exceeded 75 percent of the time. The maximum probable December 2015 through July 2015 inflows were gradually increased to the 90 percentile or inflows that historically have been exceeded 10 percent of the time. The

August 2016 and September 2016 inflows were estimated at the 75 percentile or inflows that historically have been exceeded 25 percent of the time.

Based on the storage level on October 1, 2015, Canyon Ferry Reservoir would be expected to fill to the top of the joint-use pool at an elevation of 3797.00 feet by the end of June 2016 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 near 3,200 cfs throughout the year to conserve storage and allow Canyon Ferry Reservoir to fill near an elevation of 3790.30 feet, about 7 feet below the top of the joint-use pool. Under the most probable runoff condition, releases to the Missouri River downstream of Holter Dam are started at 3,400 cfs in October 2015 and may increase to 3,600 cfs by January 2016. The flow of 4,100 cfs or greater are planned to be maintained from May 2016 throughout the remainder of WY 2016.

The average power generation produced at Canyon Ferry Powerplant during 1967-2015 is 380.0 million kilowatt-hours. Under the most probable runoff conditions, power generation produced at Canyon Ferry Powerplant during 2016 would be about 322.0 million kilowatt-hours. Under the minimum probable runoff condition, power generation would be about 250.0 million kilowatt-hours. Under the maximum probable runoff condition, power generation would be about 429 million kilowatt-hours. The routine scheduled maintenance outages are shown on Table MTT19.

TABLE MTT13A

CANYON FERRY LAKE MONTHLY OPERATIONS

Based on October 1 2015 Probable Inflow Estimates

2016 Minimum Probable Plan

Canyon Ferry Reservoir		Initial Cont		Elev 1485.7 kaf 3784.31 ft			Maximum Cont		Elev 1993.0 kaf 3800.00 ft			Minimum Cont	Elev 445.5 kaf 3732.31 ft	
2015		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	164.3	179.0	165.0	165.0	152.0	197.0	233.0	295.0	348.0	140.0	91.0	125.0	2254.3
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	0.0	5.0	12.0	16.0	17.0	16.0	12.0	78.0
HV Pump Turbines	kaf	0.0	0.0	0.0	0.0	0.0	0.0	6.7	15.4	18.9	19.5	19.5	15.7	95.7
Turbine Release	kaf	191.3	184.3	189.1	192.2	175.8	186.3	174.8	179.8	161.8	170.7	173.3	170.5	2149.9
Turbine Release	cfs	3111	3097	3075	3126	3056	3030	2938	2924	2719	2776	2818	2865	
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	191.3	184.3	189.1	192.2	175.8	186.3	181.5	195.2	180.7	190.2	192.8	186.2	2245.6
River Release	cfs	3111	3097	3075	3126	3056	3030	3050	3175	3037	3093	3136	3129	
Min Release	cfs	3111	3097	3075	3126	3056	3030	3050	3175	3037	3093	3136	3129	
Total Dam Release	kaf	191.3	184.3	189.1	192.2	175.8	186.3	186.5	207.2	196.7	207.2	208.8	198.2	2323.6
Total Dam Release	cfs	3111	3097	3075	3126	3056	3030	3134	3370	3306	3370	3396	3331	
End-Month Content	kaf	1458.7	1453.4	1429.3	1402.1	1378.3	1389.0	1435.5	1523.3	1674.6	1607.4	1489.6	1416.4	
End-Month Elevation	ft	3783.4	3783.2	3782.4	3781.5	3780.7	3781.1	3782.6	3785.5	3790.3	3788.2	3784.4	3782.0	
Net Change	kaf	-27.0	-5.3	-24.1	-27.2	-23.8	10.7	46.5	87.8	151.3	-67.2	-117.8	-73.2	-69.3

Canyon Ferry Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	cfs	3111	3097	3075	3126	3056	3030	2938	2924	2719	2776	2818	2865	
Tailwater Elev	ft	3650.8	3650.7	3650.7	3650.8	3650.7	3650.7	3650.7	3650.8	3650.7	3650.7	3650.8	3650.8	
Average Head	ft	133.1	132.6	132.1	131.2	130.4	130.2	131.2	133.3	137.3	138.6	135.5	132.4	
Average Power	mw	30.3	30.1	29.7	30.2	29.2	28.8	27.9	28.1	26.2	27.1	27.2	27.2	
Average Kwh/Af		118	118	117	117	116	115	115	116	117	118	117	115	116
Generation	gwh	22.543	21.672	22.097	22.469	20.323	21.427	20.088	20.906	18.864	20.162	20.237	19.584	250.372
End-Month Power Cap	mw	57	57	56	56	56	56	57	57	57	57	57	56	

Hauser	2015	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	195.3	189.1	196.2	196.7	183.0	194.9	189.3	195.6	182.6	192.1	193.7	188.0	2296.5
Release	cfs	3176	3178	3191	3199	3181	3170	3181	3181	3069	3124	3150	3159	
Turbine Release	cfs	3176	3178	3191	3199	3181	3170	3181	3181	3069	3124	3150	3159	
Turbine Bypass	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Generation	gwh	8.223	7.963	8.262	8.283	7.705	8.208	7.970	8.236	7.690	8.088	8.156	7.915	96.699

Holter	2015	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	196.8	190.4	196.8	196.8	184.1	196.8	190.4	196.8	190.4	196.8	196.8	190.4	2323.3
Release	cfs	3201	3200	3201	3201	3201	3201	3200	3201	3200	3201	3201	3200	
Min Release	cfs	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	3200	
Turbine Release	cfs	3201	3200	3201	3201	3201	3201	3200	3201	3200	3201	3201	3200	
Turbine Bypass	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Generation	gwh	16.766	16.220	16.766	16.766	15.684	16.766	16.220	16.766	16.220	16.766	16.766	16.220	197.926

TABLE MTT13B

CANYON FERRY LAKE MONTHLY OPERATIONS

Based on October 1 2015 Probable Inflow Estimates

2016 Most Probable Plan

Canyon Ferry Reservoir		Initial Cont		1485.7 kaf Elev 3784.31 ft			Maximum Cont		1993.0 kaf Elev 3800.00 ft		Minimum Cont		445.5 kaf Elev 3732.31 ft	
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	185.2	198.5	183.3	181.0	172.0	225.0	274.0	429.0	581.0	243.0	126.0	149.0	2947.0
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	0.0
HV Canal Diversions	kaf	0.0	0.0	0.0	0.0	0.0	0.0	11.0	18.4	17.0	18.4	18.4	12.0	95.2
HV Pump Turbines	kaf	0.0	0.0	0.0	0.0	0.0	0.0	14.4	22.4	18.1	18.4	19.2	13.4	105.9
Turbine Release	kaf	197.9	192.5	199.2	210.8	195.6	210.2	206.4	221.0	287.9	226.4	225.2	221.3	2594.4
Turbine Release	cfs	3219	3235	3240	3428	3401	3419	3469	3594	4838	3682	3663	3719	
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	197.9	192.5	199.2	210.8	195.6	210.2	220.8	243.4	306.0	244.8	244.4	234.7	2700.3
River Release	cfs	3219	3235	3240	3428	3401	3419	3711	3959	5143	3981	3975	3944	
Min Release	cfs	3219	3235	3240	3428	3401	3419	3711	3959	3707	3981	3975	3944	
Total Dam Release	kaf	197.9	192.5	199.2	210.8	195.6	210.2	231.8	261.8	323.0	263.2	262.8	246.7	2795.5
Total Dam Release	cfs	3219	3235	3240	3428	3401	3419	3896	4258	5428	4281	4274	4146	
End-Month Content	kaf	1473.0	1479.0	1463.1	1433.3	1409.7	1424.5	1466.7	1633.9	1891.9	1871.7	1734.9	1637.2	
End-Month Elevation	ft	3783.9	3784.1	3783.6	3782.6	3781.8	3782.3	3783.7	3789.1	3797.0	3796.4	3792.2	3789.2	
Net Change	kaf	-12.7	6.0	-15.9	-29.8	-23.6	14.8	42.2	167.2	258.0	-20.2	-136.8	-97.7	151.5

Canyon Ferry Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	cfs	3219	3235	3240	3428	3401	3419	3469	3594	4838	3682	3663	3719	
Tailwater Elev	ft	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	3650.8	3651.0	3650.8	3650.8	3650.8	
Average Head	ft	133.3	133.2	133.0	132.3	131.4	131.2	132.2	135.6	142.1	145.9	143.5	139.9	
Average Power	mw	31.7	31.9	31.9	34.0	33.5	33.7	34.5	36.8	53.2	40.1	39.4	39.3	
Average Kwh/Af		119	119	119	120	119	119	120	124	133	132	130	128	124
Generation	gwh	23.585	22.968	23.734	25.296	23.316	25.073	24.840	27.379	38.304	29.834	29.314	28.296	321.939
End-Month Power Cap	mw	57	57	57	57	56	56	57	57	57	57	57	57	

Hauser	2015	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	207.0	200.9	208.0	219.8	204.9	220.4	229.8	248.8	319.1	246.1	247.7	239.9	2792.4
Release	cfs	3367	3376	3383	3575	3562	3584	3862	4046	5363	4002	4028	4032	
Turbine Release	cfs	3367	3376	3383	3575	3562	3584	3862	4046	4740	4002	4028	4032	
Turbine Bypass	cfs	0	0	0	0	0	0	0	0	623	0	0	0	
Generation	gwh	8.718	8.459	8.759	9.256	8.627	9.279	9.677	10.476	11.877	10.362	10.429	10.103	116.022

Holter	2015	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	1.0	2.3	3.3	10.3	6.0	4.4	4.1	39.8
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	209.1	202.3	209.1	221.4	207.1	221.4	232.1	252.1	329.4	252.1	252.1	244.0	2832.2
Release	cfs	3401	3400	3401	3601	3600	3601	3901	4100	5536	4100	4100	4101	
Min Release	cfs	3400	3400	3400	3600	3600	3600	3900	4100	4100	4100	4100	4100	
Turbine Release	cfs	3401	3400	3401	3601	3600	3601	3901	4100	5536	4100	4100	4101	
Turbine Bypass	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Generation	gwh	17.814	17.234	17.814	18.861	17.639	18.861	19.773	21.475	28.061	21.475	21.475	20.787	241.269

TABLE MTT13C

CANYON FERRY LAKE MONTHLY OPERATIONS

Based on October 1 2015 Probable Inflow Estimates

2016 Maximum Probable Plan

Canyon Ferry Reservoir		Initial Cont 1485.7 kaf Elev 3784.31 ft				Maximum Cont 1993.0 kaf Elev 3800.00 ft				Minimum Cont 445.5 kaf Elev 3732.31 ft				
2015		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	220.9	238.0	209.0	206.0	237.0	290.0	391.0	748.0	1077.0	521.0	206.0	245.0	4588.9
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	0.0	11.0	18.4	17.0	18.4	18.4	12.0	95.2
HV Pump Turbines	kaf	0.0	0.0	0.0	0.0	0.0	0.0	15.1	24.0	18.6	18.3	19.0	13.3	108.3
Turbine Release	kaf	192.4	202.9	240.7	264.2	250.5	319.1	336.5	347.7	313.2	310.6	314.0	309.0	3400.8
Turbine Release	cfs	3129	3410	3915	4297	4355	5190	5655	5655	5263	5052	5107	5193	
Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	86.2	171.2	382.0	173.7	0.0	0.0	813.1
River Release	kaf	192.4	202.9	240.7	264.2	250.5	319.1	437.8	542.9	713.8	502.6	333.0	322.3	4322.2
River Release	cfs	3129	3410	3915	4297	4355	5190	7357	8829	11996	8174	5416	5416	
Min Release	cfs	3129	3410	3915	3915	3842	3825	3850	3711	3284	3731	3807	3838	
Total Dam Release	kaf	192.4	202.9	240.7	264.2	250.5	319.1	448.8	561.3	730.8	521.0	351.4	334.3	4417.4
Total Dam Release	cfs	3129	3410	3915	4297	4355	5190	7542	9129	12282	8473	5715	5618	
End-Month Content	kaf	1514.2	1549.3	1517.6	1459.4	1445.9	1416.8	1359.0	1545.7	1891.9	1891.9	1746.5	1657.2	
End-Month Elevation	ft	3785.2	3786.4	3785.4	3783.4	3783.0	3782.0	3780.0	3786.3	3797.0	3797.0	3792.6	3789.8	
Net Change	kaf	28.5	35.1	-31.7	-58.2	-13.5	-29.1	-57.8	186.7	346.2	0.0	-145.4	-89.3	171.5

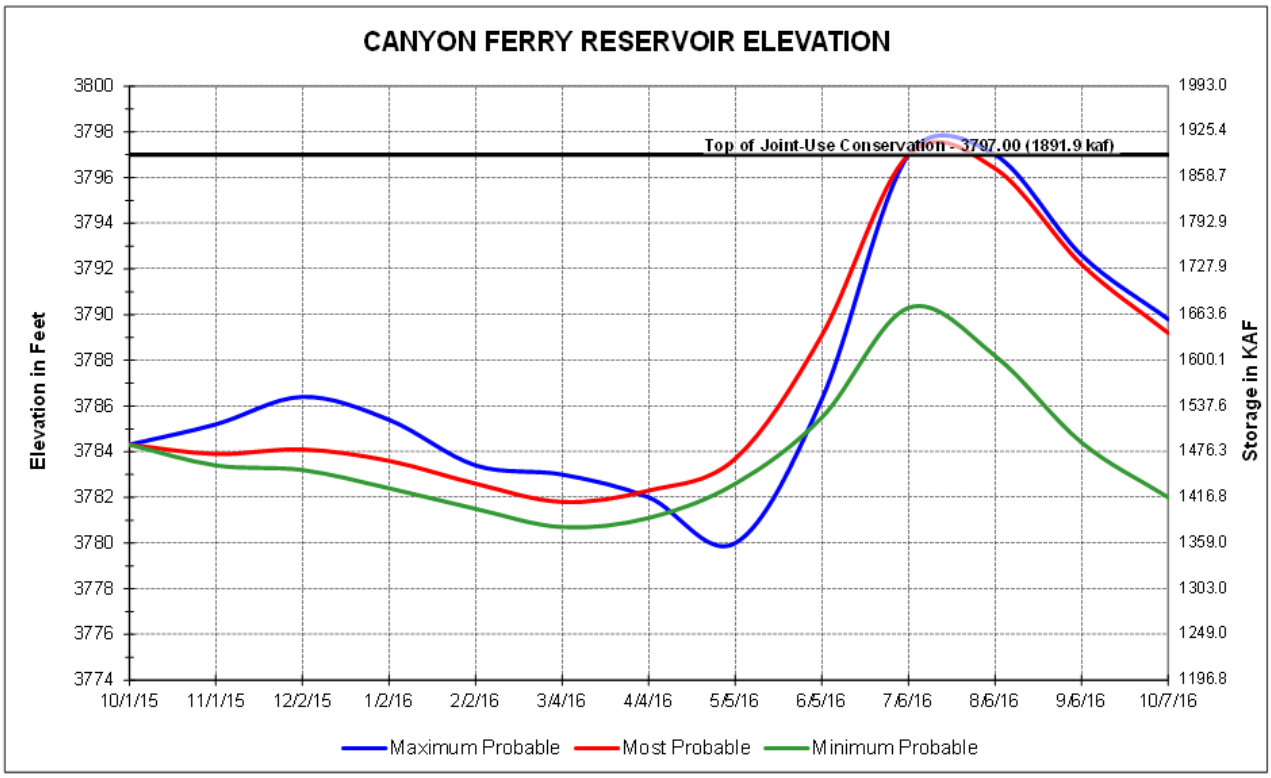
Canyon Ferry Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	cfs	3129	3410	3915	4297	4355	5190	5655	5655	5263	5052	5107	5193	
Tailwater Elev	ft	3650.8	3650.8	3650.8	3650.9	3650.9	3651.0	3651.2	3651.5	3652.0	3651.4	3651.0	3651.0	
Average Head	ft	134.0	135.0	135.1	133.5	132.3	131.5	129.8	131.7	139.7	145.6	143.8	140.2	
Average Power	mw	30.7	34.4	40.5	44.5	44.8	52.7	55.6	56.5	56.7	56.7	56.6	56.2	
Average Kwh/Af		119	122	125	125	124	123	119	121	130	136	134	131	126
Generation	gwh	22.841	24.768	30.132	33.108	31.181	39.209	40.032	42.036	40.824	42.185	42.110	40.464	428.890
End-Month Power Cap	mw	57	57	57	57	57	56	55	57	57	57	57	57	

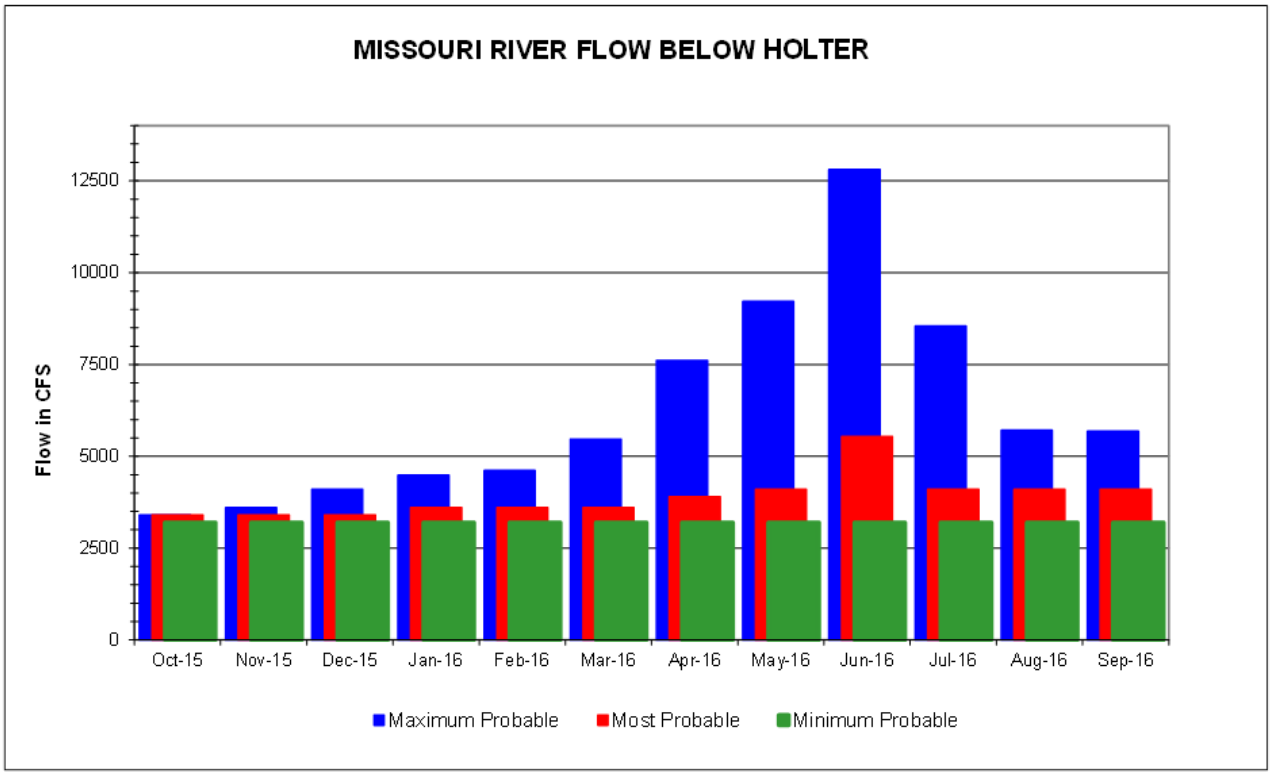
Hauser	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Missouri Gain	kaf	13.0	9.3	9.4	8.9	11.9	13.3	11.8	17.2	34.1	13.3	10.8	10.0	163.0
End-Month Content	kaf	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	64.2	
Release	kaf	205.4	212.2	250.1	273.1	262.4	332.4	449.6	560.1	747.9	515.9	343.8	332.3	4485.2
Release	cfs	3341	3566	4067	4442	4562	5406	7556	9109	12569	8390	5591	5584	
Turbine Release	cfs	3341	3566	4067	4442	4562	4740	4740	4740	4740	4740	4740	4740	
Turbine Bypass	cfs	0	0	0	0	0	666	2816	4369	7829	3650	851	844	
Generation	gwh	8.650	8.935	10.530	11.501	11.050	12.272	11.877	12.272	11.877	12.272	12.272	11.877	135.385

Holter	2015	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	209.1	214.2	252.1	275.6	265.3	336.0	452.7	566.8	762.4	525.3	351.0	337.9	4548.4
Release	cfs	3401	3600	4100	4482	4612	5465	7608	9218	12813	8543	5708	5679	
Min Release	cfs	3400	3600	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100	
Turbine Release	cfs	3401	3600	4100	4482	4612	5465	7100	7100	7100	7100	5708	5679	
Turbine Bypass	cfs	0	0	0	0	0	0	508	2118	5713	1443	0	0	
Generation	gwh	17.814	18.248	21.475	23.476	22.598	28.624	35.988	37.188	35.988	37.188	29.897	28.786	337.270

FIGURE MTG14

CANYON FERRY RESERVOIR





WATER YEAR 2016

Gibson Reservoir

Three operating plans were prepared for 2016 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 4724.00 feet (98,688 AF) until the peak of the spring runoff has passed and has begun to recede.

(2) The spillway crest elevation is 4712.00 feet (83,248 AF). 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 4724.00 (98,688 AF).

(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 an elevation of 4609.00 feet (5,148 AF) 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 an elevation of 4712.00 feet (83,248 AF) to provide incidental flood control. During most years, Gibson Reservoir is generally maintained below an elevation of 4700.90 feet (70,000 AF). When normal or above normal inflow is forecast, the end-of-April target storage content is 55,000 AF. When below normal inflow is forecast, the end-of-April target storage content can be increased but set no higher than 70,000 AF.

(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.

During September 2015 the average inflow was approximately 175 cfs. Gibson Reservoir ended WY 2015 with a content of 5,371 AF of storage at an elevation of 4609.77 feet on September 30, 2015. This was 28 percent of average and 5 percent of normal full. The total inflow for Gibson Reservoir during 2015 was approximately 431,600 AF, 81 percent of the 30 year average.

The most probable October 2015 through March 2016 inflows to Gibson Reservoir were estimated based upon record low inflows. The October 2015 inflows start at 63 percent of the 30 year average and gradually trend towards 85 percent of average by May 2016. The April 2016 and September 2016 inflows were estimated at the 85 percent of the 30 year average, or flows near the 25 to 30 percentile.

The minimum probable October 2015 through March 2016 inflows to Gibson Reservoir were estimated to equal near the record low. The April 2016 through September 2016 inflows are estimated to be near the 10-15 percentile flows, or flows that would be exceeded 85-90 percent of the time.

The maximum probable October 2015 through February 2016 inflows to Gibson Reservoir were estimated near the 30-35 percentiles, or flows that would be exceeded 65-70 percent of the time. The March 2016 inflow was estimated at the 30 year average with a gradual increase to 120 percent of average by May 2016. The remainder of WY 2016 is estimated at 120 percent of the 30 year average inflow.

Gibson Reservoir is expected to fill to the top of the conservation pool at an elevation of 4724.00 feet (98,688 AF) under the most, minimum and maximum probable runoff scenarios. Based upon the storage content of Gibson Reservoir on September 30, 2015, a winter release of approximately 75-100 cfs over the Sun River Diversion Dam can be maintained. These flow rates may vary as runoff and snowpack conditions change.

TABLE MTT14A

GIBSON RESERVOIR MONTHLY OPERATIONS

Based on October 2015 Inflow Estimates

2016 Minimum Probable Runoff

Gibson Reservoir		Initial Cont		5.4 kaf		Maximum Cont		98.7 kaf		Minimum Cont		5.0 kaf	
		Elev	4609.87 ft			Elev	4724.01 ft			Elev	4608.47 ft		
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	7.7	8.0	6.5	6.8	6.5	9.2	30.0	106.0	110.0	37.3	15.4	10.9	354.3
Spillway Rels	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Total Release	kaf	8.1	6.3	1.6	1.5	1.5	1.0	17.5	80.8	79.1	99.2	47.2	10.9	354.7
Total Release	cfs	132	106	26	24	26	16	294	1314	1329	1613	768	183	
End-Month Content	kaf	5.0	6.7	11.6	16.9	21.9	30.1	42.6	67.8	98.7	36.8	5.0	5.0	
End-Month Elevation	ft	4608.47	4613.63	4625.11	4635.52	4644.31	4657.13	4673.55	4698.90	4724.01	4666.36	4608.47	4608.47	
End-Month Area	acre	271.7	377.3	473.4	541.7	594.5	689.6	853.0	1113.7	1334.0	765.6	271.7	271.7	
Net Change Content	kaf	-0.4	1.7	4.9	5.3	5.0	8.2	12.5	25.2	30.9	-61.9	-31.8	0.0	-0.4

Sun River Div Dam	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Gain Below Gibson	cfs	20	20	24	26	24	34	57	184	215	78	29	22	
Rels to WFC	cfs	67	76	0	0	0	0	0	75	0	0	0	0	
Rels to PSC	cfs	0	0	0	0	0	0	301	1360	1336	1360	597	155	
Total Diversion	kaf	4.1	4.5	0.0	0.0	0.0	0.0	17.9	88.2	79.5	83.6	36.7	9.2	323.7
Total Diversion	cfs	67	76	0	0	0	0	301	1434	1336	1360	597	155	
Flow Over Div Dam	kaf	5.2	3.0	3.1	3.1	2.9	3.1	3.0	3.9	12.4	20.4	12.3	3.0	75.4
Flow Over Div Dam	cfs	85	50	50	50	50	50	50	63	208	332	200	50	
Min River Rels	kaf	3.1	3.0	3.1	3.1	2.9	3.1	3.0	3.1	3.0	3.1	3.1	3.0	36.6
Min River Rels	cfs	50	50	50	50	50	50	50	50	50	50	50	50	

Willow Crk Operations		Initial Cont		17.5 kaf		Maximum Cont		31.9 kaf		Minimum Cont		0.1 kaf	
		Elev	4131.13 ft			Elev	4142.04 ft			Elev	4093.42 ft		
	2015	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	3.5	3.8	0.0	0.0	0.0	0.1	0.1	3.9	0.0	0.0	0.0	0.0	11.4
WCR Dam Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	10.0	22.1
End-Month Content	kaf	21.0	24.8	24.8	24.8	24.8	24.9	25.0	28.9	28.9	28.9	16.8	6.8	
End-Month Elevation	ft	4134.09	4136.98	4136.98	4136.98	4136.98	4137.06	4137.13	4139.95	4139.95	4139.95	4130.49	4118.75	
Net Change Content	kaf	3.5	3.8	0.0	0.0	0.0	0.1	0.1	3.9	0.0	0.0	-12.1	-10.0	-10.7

Pishkun Operations		Initial Cont		21.6 kaf		Maximum Cont		46.8 kaf		Minimum Cont		16.0 kaf	
		Elev	4349.10 ft			Elev	4370.07 ft			Elev	4341.99 ft		
	2015	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	17.9	83.6	79.5	83.6	36.7	9.2	310.5
Total Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	15.2	66.9	65.2	71.1	31.2	7.8	257.4
PSH Dam Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	85.0	48.0	7.8	261.8
End-Month Content	kaf	21.6	21.4	21.2	21.0	20.8	20.6	26.6	46.5	46.7	32.8	16.0	16.0	
End-Month Elevation	ft	4349.10	4348.86	4348.63	4348.39	4348.15	4347.92	4354.49	4369.87	4370.00	4360.05	4341.99	4341.99	
Net Change Content	kaf	0.0	-0.2	-0.2	-0.2	-0.2	-0.2	6.0	19.9	0.2	-13.9	-16.8	0.0	-5.6

Greenfields Irrig	2015	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	85.0	48.0	18.0	272.0
GID Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	85.0	48.0	7.8	261.8

River Blw Div Dam	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow Over Div Dam	cfs	85	50	50	50	50	50	50	63	208	332	200	50	
PSC Return Flow	cfs	0	0	0	0	0	0	37	218	192	203	89	24	
WCR Dam Rels	cfs	0	0	0	0	0	0	0	0	0	0	197	168	
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 @ FeetShaw Div	cfs	67	59	63	65	66	75	136	179	200	236	207	185	
Ft Shaw Demand	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.7	7.9	8.0	11.4	9.6	8.0	46.6
Ft Shaw Tot Deliv	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.7	7.9	8.0	11.4	9.6	8.0	46.6
Flow blw Feet Shaw	cfs	50	59	63	65	66	75	124	50	66	50	50	50	

TABLE MTT14B

GIBSON RESERVOIR MONTHLY OPERATIONS

Based on October 2015 Inflow Estimates

2016 Most Probable Runoff

Gibson Reservoir		Initial Cont	5.4 kaf		Maximum Cont	98.7 kaf		Minimum Cont	5.0 kaf				
		Elev	4609.77 ft		Elev	4724.01 ft		Elev	4608.47 ft				
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	9.8	10.5	9.1	7.9	7.5	10.6	35.8	128.3	132.7	48.9	20.1	14.3	435.5
Spillway Rels	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Total Release	kaf	8.6	7.8	4.6	4.5	4.4	4.0	44.3	71.8	108.9	99.2	63.5	14.3	435.9
Total Release	cfs	140	131	75	73	76	65	744	1168	1830	1613	1033	240	
End-Month Content	kaf	6.6	9.3	13.8	17.2	20.3	26.9	18.4	74.9	98.7	48.4	5.0	5.0	
End-Month Elevation	ft	4613.36	4620.01	4629.60	4636.07	4641.59	4652.36	4638.24	4705.10	4724.01	4680.01	4608.47	4608.47	
End-Month Area	acre	374.4	430.8	505.0	545.0	579.0	651.0	558.2	1178.5	1334.0	937.6	271.7	271.7	
Net Change Content	kaf	1.2	2.7	4.5	3.4	3.1	6.6	-8.5	56.5	23.8	-50.3	-43.4	0.0	-0.4

Sun River Div Dam	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Gain Below Gibson	cfs	20	20	24	26	24	34	57	184	215	78	29	22	
Rels to WFC	cfs	75	76	0	0	0	0	76	55	0	0	0	0	
Rels to PSC	cfs	0	0	0	0	0	0	625	1031	1333	1360	735	212	
Total Diversion	kaf	4.6	4.5	0.0	0.0	0.0	0.0	41.7	66.8	79.3	83.6	45.2	12.6	338.3
Total Diversion	cfs	75	76	0	0	0	0	701	1086	1333	1360	735	212	
Flow Over Div Dam	kaf	5.2	4.5	6.1	6.1	5.8	6.1	6.0	16.3	42.4	20.4	20.1	3.0	142.0
Flow Over Div Dam	cfs	85	76	99	99	101	99	101	265	713	332	327	50	
Min River Rels	kaf	4.6	4.5	6.1	6.1	5.8	6.1	6.0	6.1	6.0	3.1	3.1	3.0	60.5
Min River Rels	cfs	75	75	100	100	100	100	100	100	100	50	50	50	

Willow Crk Operations		Initial Cont	17.5 kaf		Maximum Cont	31.9 kaf		Minimum Cont	0.1 kaf				
		Elev	4131.13 ft		Elev	4142.04 ft		Elev	4093.42 ft				
	2015	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Inflow	kaf	3.9	3.8	0.0	0.0	0.0	0.0	3.8	2.9	0.0	0.0	0.0	0.0	14.4
WCR Dam Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	9.5	13.4
End-Month Content	kaf	21.4	25.2	25.2	25.2	25.2	25.2	29.0	31.9	31.9	31.9	28.0	18.5	
End-Month Elevation	ft	4134.41	4137.28	4137.28	4137.28	4137.28	4137.28	4140.02	4142.04	4142.04	4142.04	4139.31	4132.02	
Net Change Content	kaf	3.9	3.8	0.0	0.0	0.0	0.0	3.8	2.9	0.0	0.0	-3.9	-9.5	1.0

Pishkun Operations		Initial Cont	21.6 kaf		Maximum Cont	46.8 kaf		Minimum Cont	16.0 kaf				
		Elev	4349.07 ft		Elev	4370.07 ft		Elev	4341.99 ft				
	2015	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	37.2	63.4	79.3	83.6	45.2	12.6	321.3
Total Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	31.6	50.7	65.0	71.1	38.4	10.7	267.5
PSH Dam Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	85.0	48.0	17.9	271.9
End-Month Content	kaf	21.6	21.4	21.2	21.0	20.8	20.6	43.0	46.7	46.7	32.8	23.2	16.0	
End-Month Elevation	ft	4349.10	4348.86	4348.63	4348.39	4348.15	4347.92	4367.52	4370.00	4370.00	4360.05	4350.91	4341.99	
Net Change Content	kaf	0.0	-0.2	-0.2	-0.2	-0.2	-0.2	22.4	3.7	0.0	-13.9	-9.6	-7.2	-5.6

Greenfields Irrig	2015	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	85.0	48.0	18.0	272.0
GID Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	85.0	48.0	17.9	271.9

River Blw Div Dam	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow Over Div Dam	cfs	85	76	99	99	101	99	101	265	713	332	327	50	
PSC Return Flow	cfs	0	0	0	0	0	0	76	166	217	203	111	32	
WCR Dam Rels	cfs	0	0	0	0	0	0	0	0	0	0	63	160	
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 @ FeetShaw Div	cfs	67	84	112	114	116	124	225	329	729	236	207	185	
Ft Shaw Demand	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.7	7.9	8.0	11.4	9.6	8.0	46.6
Ft Shaw Tot Deliv	kaf	1.0	0.0	0.0	0.0	0.0	0.0	0.7	7.9	8.0	11.4	9.6	8.0	46.6
Flow blw Feet Shaw	cfs	50	84	112	114	116	124	213	200	595	50	50	50	

TABLE MTT14C

GIBSON RESERVOIR MONTHLY OPERATIONS

Based on October 2015 Inflow Estimates

2016 Maximum Probable Runoff

Gibson Reservoir		Initial Cont		5.4 kaf		Maximum Cont		98.7 kaf		Minimum Cont		5.0 kaf	
			Elev	4609.87 ft			Elev	4724.01 ft			Elev	4608.47 ft	
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	15.5	16.1	13.0	11.3	10.1	14.1	49.3	188.9	210.6	64.7	29.6	21.0	644.2
Spillway Rels	cfs	0	0	0	0	0	0	0	0	0	0	0	0	
Total Release	kaf	8.0	9.3	6.5	10.7	10.1	14.8	57.1	129.6	189.5	106.2	81.8	21.0	644.6
Total Release	cfs	130	156	106	174	176	241	960	2108	3185	1727	1330	353	
End-Month Content	kaf	12.9	19.7	26.2	26.8	26.8	26.1	18.3	77.6	98.7	57.2	5.0	5.0	
End-Month Elevation	ft	4627.80	4640.54	4651.28	4652.21	4652.21	4651.12	4638.07	4707.37	4724.01	4688.95	4608.47	4608.47	
End-Month Area	acre	492.5	572.7	642.2	649.7	649.7	640.9	557.1	1199.1	1334.0	1025.2	271.7	271.7	
Net Change Content	kaf	7.5	6.8	6.5	0.6	0.0	-0.7	-7.8	59.3	21.1	-41.5	-52.2	0.0	-0.4

Sun River Div Dam	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Gain Below Gibson	cfs	20	20	24	26	24	34	57	184	215	78	29	22	
Rels to WFC	cfs	75	76	0	0	0	75	52	0	0	0	0	0	
Rels to PSC	cfs	0	0	0	0	0	0	565	1091	1333	1400	935	113	
Total Diversion	kaf	4.6	4.5	0.0	0.0	0.0	4.6	36.7	67.1	79.3	86.1	57.5	6.7	347.1
Total Diversion	cfs	75	76	0	0	0	75	617	1091	1333	1400	935	113	
Flow Over Div Dam	kaf	4.6	6.0	8.0	12.3	11.5	12.3	23.8	73.8	123.0	24.9	26.1	15.6	341.9
Flow Over Div Dam	cfs	75	101	130	200	200	200	400	1200	2067	405	424	262	
Min River Rels	kaf	4.6	6.0	6.1	12.3	11.5	12.3	23.8	73.8	29.8	3.1	3.1	3.0	189.4
Min River Rels	cfs	75	100	100	200	200	200	400	1200	500	50	50	50	

Willow Crk Operations		Initial Cont		17.5 kaf		Maximum Cont		31.9 kaf		Minimum Cont		0.1 kaf	
			Elev	4131.13 ft			Elev	4142.04 ft			Elev	4093.42 ft	
	2015	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	3.9	3.8	0.0	0.0	0.0	4.0	2.7	0.0	0.0	0.0	0.0	0.0	14.4
WCR Dam Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
End-Month Content	kaf	21.4	25.2	25.2	25.2	25.2	29.2	31.9	31.9	31.9	31.9	31.9	31.0	
End-Month Elevation	ft	4134.41	4137.28	4137.28	4137.28	4137.28	4140.16	4142.04	4142.04	4142.04	4142.04	4142.04	4141.42	
Net Change Content	kaf	3.9	3.8	0.0	0.0	0.0	4.0	2.7	0.0	0.0	0.0	0.0	-0.9	13.5

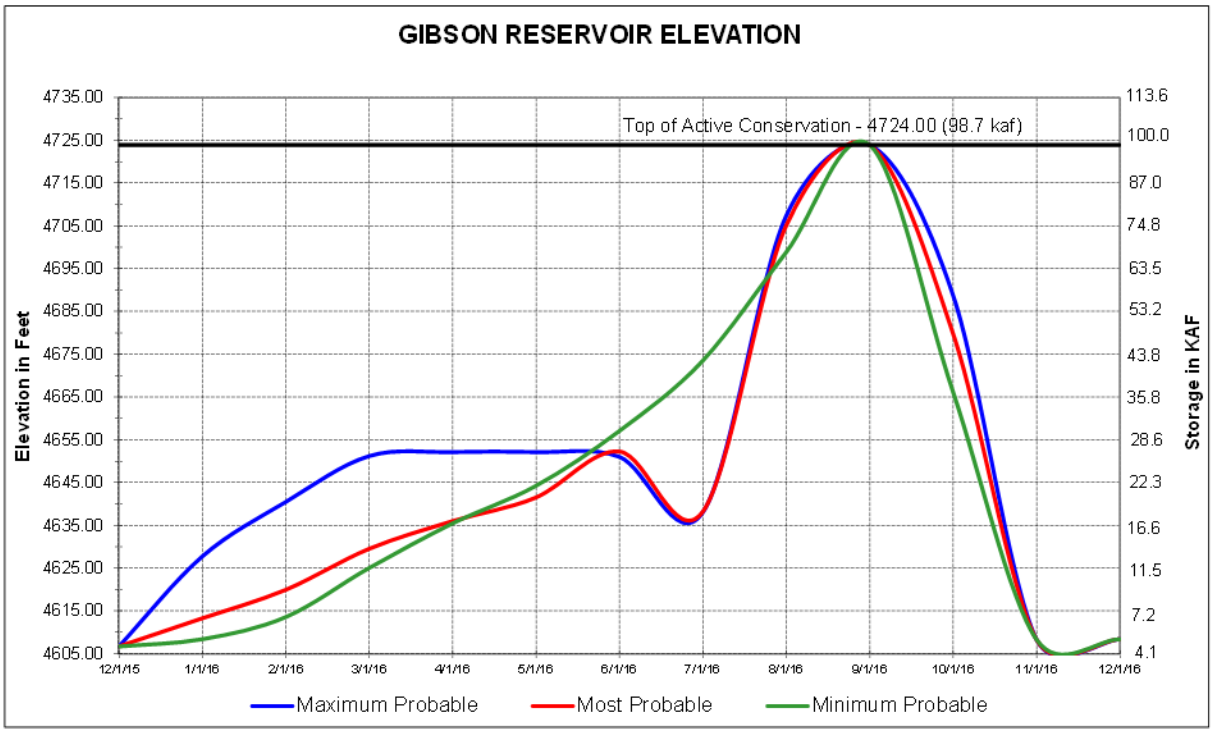
Pishkun Operations		Initial Cont		21.6 kaf		Maximum Cont		46.8 kaf		Minimum Cont		16.0 kaf	
			Elev	4349.10 ft			Elev	4370.07 ft			Elev	4341.99 ft	
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Rels to PSC	kaf	0.0	0.0	0.0	0.0	0.0	0.0	33.6	67.1	79.3	86.1	57.5	6.7	330.3
Total Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	28.6	53.7	65.0	73.2	48.9	5.7	275.1
PSH Dam Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	85.0	48.0	18.0	272.0
End-Month Content	kaf	21.6	21.4	21.2	21.0	20.8	20.6	40.0	46.7	46.7	34.9	35.8	23.5	
End-Month Elevation	ft	4349.10	4348.86	4348.63	4348.39	4348.15	4347.92	4365.44	4370.00	4370.00	4361.71	4362.39	4351.24	
Net Change Content	kaf	0.0	-0.2	-0.2	-0.2	-0.2	-0.2	19.4	6.7	0.0	-11.8	0.9	-12.3	1.9

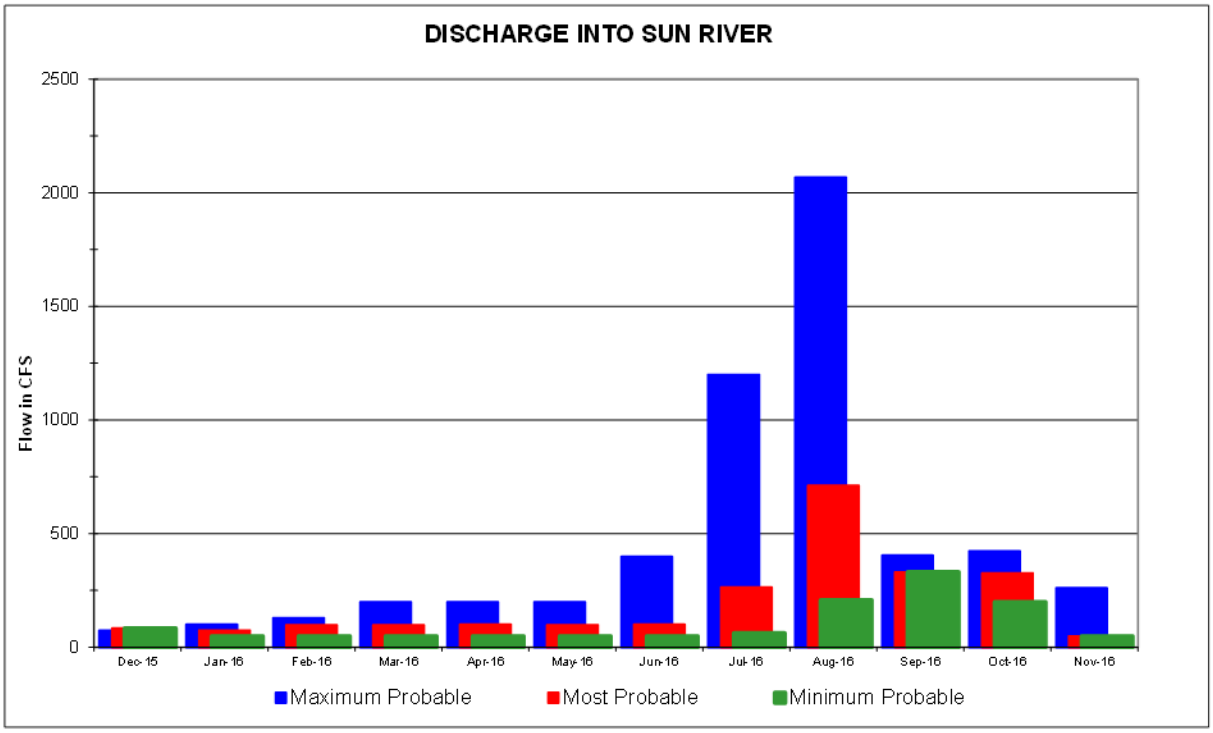
Greenfields Irrig	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
GID Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	85.0	48.0	18.0	272.0
GID Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.0	47.0	65.0	85.0	48.0	18.0	272.0

River Blw Div Dam	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow Over Div Dam	cfs	75	101	130	200	200	200	400	1200	2067	405	424	262	
PSC Return Flow	cfs	0	0	0	0	0	0	67	174	192	179	125	15	
WCR Dam Rels	cfs	0	0	0	0	0	0	0	0	0	0	0	15	
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 @ FeetShaw Div	cfs	57	109	143	215	216	224	516	1272	2059	285	255	235	
Ft Shaw Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.7	7.9	8.0	11.4	9.6	8.0	45.6
Ft Shaw Tot Deliv	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.7	7.9	8.0	11.4	9.6	8.0	45.6
Flow blw Feet Shaw	cfs	57	109	143	215	216	224	504	1143	1924	99	99	101	

FIGURE MTG15

GIBSON RESERVOIR





WATER YEAR 2016

Lake Elwell (Tiber Dam)

Three operating plans were prepared for 2016 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 an area capacity table. The data were used to calculate reservoir capacity since dam closure in October of 1957. The 2002 survey determined that Lake Elwell has a storage capacity of 925,649 AF and a surface area of 18,275 acres at a reservoir elevation of 2993.00 feet. Since closure in 1957, the reservoir has accumulated a sediment volume of 42,179 AF below an elevation of 2993.00 feet. 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 an elevation of 2993.00 feet (925,649 AF) (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 2976.00 and 2980.00 feet (667,213 and 719,885 AF) 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 an elevation of 2982.00 feet (747,953 AF) 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 MTFWP, whenever an adequate water supply is available and conditions allow, releases will be scheduled to simulate 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 an elevation of 2993.00 feet (925,649 AF), 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 2993.00 feet (925,649 AF) 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 3008.00 feet (1,227,174 AF) by the end of June; to provide replacement storage and assist the Corps with the operations of their mainstem reservoir system.

13. Whenever possible, attempts are made to maintain water temperatures in the Marias River between 55 degrees Fahrenheit and 60 degrees Fahrenheit 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 WY 2015, the total annual valley precipitation was 94 percent of average and the total annual mountain precipitation was 77 percent of average. Inflow during August 2015 totaled 2,100 AF which was only 16 percent of average and September 2015 totaled 7,500 AF, which was only 65 percent of average. The total annual inflow to Lake Elwell was 81 percent of average, totaling 436,300 AF. By the end of WY 2015, operations of Lake Elwell drafted storage to 819,442 AF at an elevation of 2986.80 feet.

The most probable October 2015 through December 2015 inflows to Lake Elwell were estimated at 20 percentile inflows or inflows that are historically exceeded 80 percent of the time. January 2016 inflows were estimated at 25 percentile inflows. Inflows for February 2016 and March 2016 were estimated at 30 percentile inflows. The most probable inflows to Lake Elwell for April 2016 through September 2016 were estimated to equal 40 percentile inflows or inflows that are historically exceeded 60 percent of the time.

The minimum probable October 2015 through December 2015 inflows to Lake Elwell were based on near record inflows due to the dry conditions in August 2015 and September 2015. The minimum probable inflows to Lake Elwell for January 2016 through September 2016 were estimated to equal 10 percentile inflows or inflows that are historically exceeded 90 percent of the time.

The maximum probable October 2016 through December 2016 inflows to Lake Elwell were estimated to equal 40 percentile inflows or inflows that are historically exceeded 60 percent of the time. January 2016 and February 2016 inflows were estimated to equal 50 percentile inflows. March 2016 through September 2016 inflows to Lake Elwell were estimated to equal 75 percentile inflows that are historically exceeding 25 percent of the time.

Water levels are expected to peak in late June 2016 or early July 2016 at approximately 6.9 feet below the top of the joint use pool under the minimum probable runoff condition. Under the most and maximum probable runoff conditions, the water level in Lake Elwell is expected to peak in late June 2016 or early July 2016 at or near the top of the joint use pool. A minimum river release of 500 cfs is maintained through the winter under all three runoff conditions.

TABLE MTT15
TIBER RESERVOIR OPERATING PLAN
Based on October 1 2015 Inflow Estimates

2016 MINIMUM Probable Inflow Forecast

Tiber Reservoir		Initial Cont Elev 2986.80 ft 819.4 kaf					Maximum Cont Elev 3013.69 ft 1356.5 kaf			Minimum Cont Elev 2932.27 ft 260.7 kaf			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	4.2	5.5	8.3	11.1	13.4	21.5	34.8	78.3	68.6	18.6	4.9	4.9	274.1
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	30.7	29.8	30.7	30.7	28.8	30.7	26.8	24.6	23.8	24.6	24.6	23.8	329.6
Dam Release	cfs	499	501	499	499	501	499	450	400	400	400	400	400	
End-Month Content	kaf	792.9	768.6	746.2	726.6	711.2	702.0	710.0	763.7	808.5	802.5	782.8	763.9	
End-Month Elevation	ft	2985.07	2983.43	2981.88	2980.49	2979.36	2978.68	2979.27	2983.09	2986.10	2985.71	2984.39	2983.11	
Net Change Content	kaf	-26.5	-24.3	-22.4	-19.6	-15.4	-9.2	8.0	53.7	44.8	-6.0	-19.7	-18.9	-55.5

2016 MOST Probable Inflow Forecast

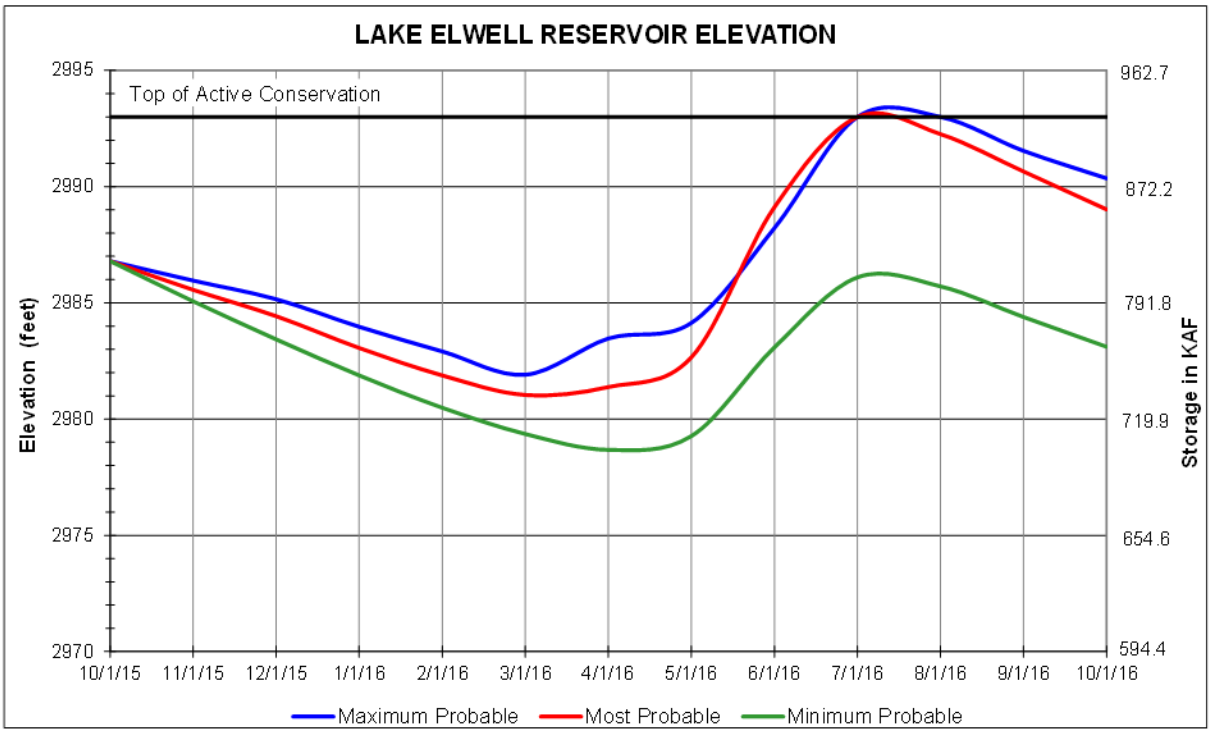
Tiber Reservoir		Initial Cont Elev 2986.80 ft 819.4 kaf					Maximum Cont Elev 3013.69 ft 1356.5 kaf			Minimum Cont Elev 2932.27 ft 260.7 kaf			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	11.5	13.0	10.5	13.8	16.8	35.5	54.0	142.2	124.1	41.9	14.3	11.9	489.5
Evaporation	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	30.7	29.8	30.7	30.7	28.8	30.7	35.7	42.4	55.7	55.3	43.0	39.9	453.4
Dam Release	cfs	499	501	499	499	501	499	600	690	936	899	699	671	
End-Month Content	kaf	800.2	783.4	763.2	746.3	734.3	739.1	757.4	857.2	925.6	912.2	883.5	855.5	
End-Month Elevation	ft	2985.56	2984.43	2983.06	2981.88	2981.04	2981.38	2982.66	2989.12	2993.00	2992.26	2990.65	2989.02	
Net Change Content	kaf	-19.2	-16.8	-20.2	-16.9	-12.0	4.8	18.3	99.8	68.4	-13.4	-28.7	-28.0	36.1

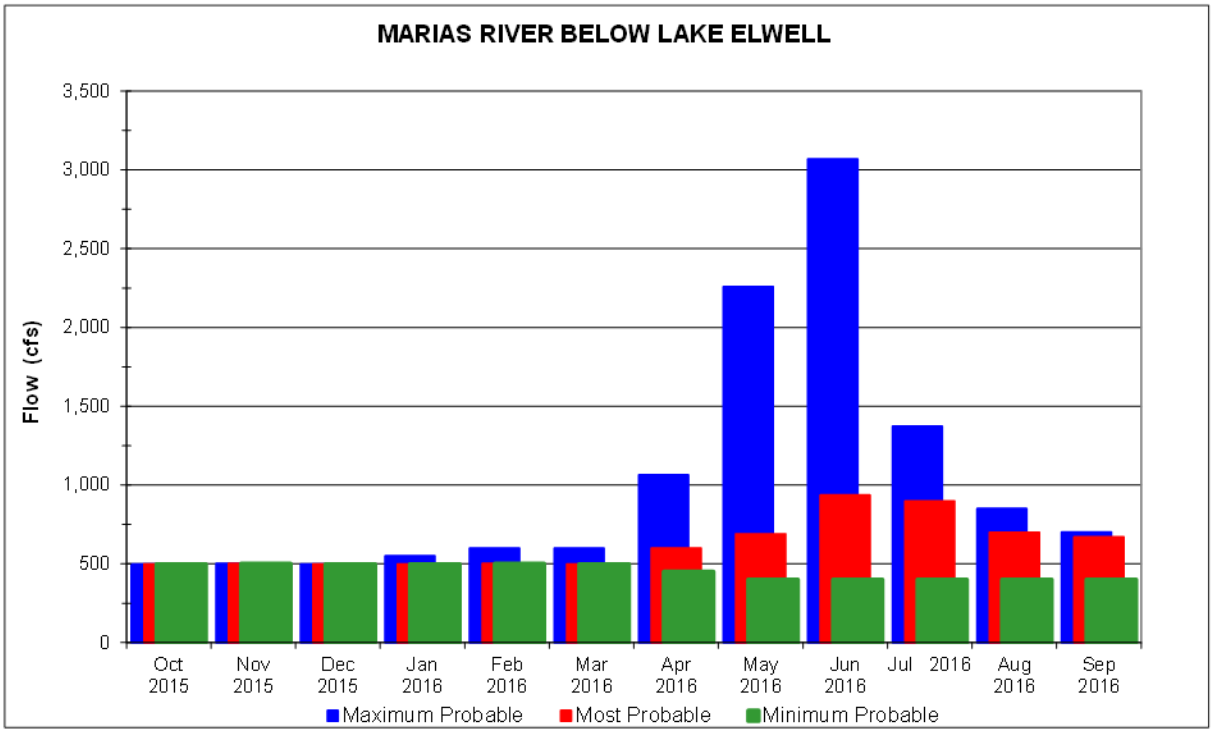
2016 MAXIMUM Probable Inflow Forecast

Tiber Reservoir		Initial Cont Elev 2986.80 ft 819.4 kaf					Maximum Cont Elev 3013.69 ft 1356.5 kaf			Minimum Cont Elev 2932.27 ft 260.7 kaf			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	17.6	17.7	13.0	18.4	20.1	59.4	73.3	202.0	266.0	84.4	25.9	20.9	818.7
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	30.7	29.8	30.7	33.8	34.5	36.9	63.4	138.9	182.6	84.4	52.3	41.7	759.7
Dam Release	cfs	499	501	499	550	600	600	1065	2259	3069	1373	851	701	
End-Month Content	kaf	806.3	794.2	776.5	761.1	746.7	769.2	779.1	842.2	925.6	925.6	899.2	878.4	
End-Month Elevation	ft	2985.96	2985.16	2983.97	2982.91	2981.91	2983.47	2984.14	2988.22	2993.00	2993.00	2991.54	2990.36	
Net Change Content	kaf	-13.1	-12.1	-17.7	-15.4	-14.4	22.5	9.9	63.1	83.4	0.0	-26.4	-20.8	59.0

FIGURE MTG16

LAKE ELWELL





WATER YEAR 2016

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, 2015, was 16,195 AF, 103 percent of average at elevation 4749.28 feet. The total inflow to Lake Sherburne during water year 2015 was 120,700 AF, 86 percent of average. 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 ensure filling the reservoir to elevation 4788.00 feet. The final reservoir filling up to elevation 4788.00 feet 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 ft, 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 feet.

(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 feet. The outlet gates should be fully opened during the spring runoff when the water surface rises to or above elevation 4788.00 feet and fully open at any time the water surface is above elevation 4788.00 feet.

Three operating plans were prepared for 2016 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 October 2015 through December 2015 inflows were estimated at 10 percentile inflows or inflows that are exceeded 90 percent of the time. January 2016 and February 2016 inflows were estimated at 25 percentile inflows. March 2016 inflows

were estimated at 40 percentile inflows. April 2016 to September 2016 inflows were estimated at 50 percentile inflows or inflows that are exceeded 50 percent of the time.

The minimum probable October 2015 through December 2015 inflows to Lake Sherburne were estimated at near record inflows due to the dry conditions in August 2015 and September 2015. The minimum probable January 2016 through September 2016 inflows to Lake Sherburne were estimated to equal 10 percentile inflows or inflows that are exceeded 90 percent of the time.

The maximum probable October 2015 through January 2016 inflows to Lake Sherburne were estimated to equal 45 percentile inflows or inflows that are exceeded 55 percent of the time. February 2016 and March 2016 inflows were estimated to be 50 percentile inflows. April 2016 through September 2016 inflows were estimated to equal 90 percentile inflows or inflows that that are exceeded only 10 percent of the time.

Fresno Reservoir

The cumulative valley precipitation through the end of September 2015 was 86 percent of average. Total inflow into Fresno Reservoir for the water year was 193,100 AF, 76 percent of average. Diversions from the St. Mary River Basin to the Milk River Basin accounted for about 68 percent of the inflow to Fresno Reservoir during 2015. Releases were reduced to 45 cfs on September 21, 2015, and storage slowly drafted to 59,816 AF at an elevation of 2567.54 feet by September 30, 2015. This storage was 145 percent of average and 65 percent of normal full capacity.

Fresno Reservoir 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 an elevation of 2567.00 feet by March 1, prior to spring runoff. Maintaining the water level below an elevation of 2567.00 feet provides 33,841 AF of space for storage of spring runoff.

Winter releases will be the amount necessary to provide approximately 33,841 AF 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 approximately 45 cfs will be made from Fresno Reservoir during October 2015 through February 2016 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 planned 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.

Inflows into Fresno Reservoir included runoff above Fresno Reservoir and diversions through the St Mary Canal. The runoff portion of the inflow is called the natural inflow.

The most probable plan used 15 percentile natural inflows or natural inflows that have historically been exceeded 85 percent of the time for October. November 2015 and December 2015 inflows were estimated as 25 percentile inflows. January 2016 and February 2016 inflows were estimated at 30 percentile inflows. March 2016 through September 2016 natural inflows were estimated at 40 percentile natural inflows or natural inflows that have historically been exceeded by 60 percent of the time.

The minimum probable natural inflows during October 2015 through December 2015 to Fresno Reservoir are estimated to equal 10 percentile inflows or inflows that are historically exceeded 90 percent of the time.

The maximum probable natural inflows during October 2015 through December 2015 to Fresno Reservoir are estimated to equal approximately 50 percent exceedance levels or conditions that would typically only be exceeded half of the time. January 2016 through September 2016 natural inflows were estimated at 90 percentile inflows or inflows that exceeded only 10 percent of the time.

Nelson Reservoir

Storage in Nelson Reservoir on September 30, 2015 was 66,467 AF, 121 percent of average at an elevation of 2218.56 feet. Malta Irrigation District tries to fill Nelson Reservoir 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 AF, 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 most and maximum probable plans. Fresno Reservoir is expected to fill under all three plans. These operations for the three runoff conditions are shown in Table MTT16A-C and Figure MTG17-18. With the high carryover, no water will need to be transferred from Fresno Reservoir to Nelson Reservoir during late spring of 2016. Nelson Reservoir is expected to fill from natural runoff occurring between Fresno Reservoir and Dodson Diversion Dam.

TABLE MTT16A
MILK RIVER BASIN OPERATING PLAN
Based on October 1 Inflow Estimates

2016 Minimum Probable Runoff

Sherburne Reservoir		Initial Cont 16.2 kaf Elev 4749.28 ft					Maximum Cont 66.2 kaf Elev 4788.03 ft				Minimum Cont 3.1 kaf Elev 4731.73 ft			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Sherburne Inflow	kaf	2.4	2.1	1.8	2.2	1.4	2.9	8.5	25.1	27.2	14.4	6.4	3.9	98.3
Sherburne Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	16.7	22.5	18.5	33.3	16.5	0.0	107.5
Sherburne Rels	cfs	0	0	0	0	0	0	281	366	311	542	268	0	
Net Content Change	kaf	2.4	2.1	1.8	2.2	1.4	2.9	-8.2	2.6	8.7	-18.9	-10.1	3.9	-9.2
End-Month Content	kaf	18.6	20.7	22.5	24.7	26.1	29.0	20.8	23.4	32.1	13.2	3.1	7.0	
End-Month Elevation	ft	4751.85	4754.01	4755.79	4757.89	4759.20	4761.83	4754.11	4756.66	4764.53	4745.89	4731.73	4737.94	

St. Mary River	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
St Mary Runoff	kaf	9.2	5.7	5.5	4.0	4.6	4.1	7.4	68.2	81.5	42.1	21.7	14.5	268.5
Nat Flow @ Boundary	kaf	11.6	7.8	7.3	6.2	6.0	7.0	15.9	93.3	108.7	56.5	28.1	18.4	366.8
St Mary canal rels	cfs	0	0	0	0	0	0	250	550	600	600	278	0	
St Mary canal rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	14.9	33.8	35.7	36.9	17.1	0.0	138.4

Fresno Reservoir		Initial Cont 59.8 kaf Elev 2567.50 ft					Maximum Cont 91.7 kaf Elev 2575.00 ft				Minimum Cont 0.5 kaf Elev 2531.90 ft			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Milk River runoff	kaf	1.0	0.5	0.2	0.3	0.7	2.5	3.2	2.2	2.8	0.8	0.8	1.9	16.9
From St Mary Canal	kaf	0.0	0.0	0.0	0.0	0.0	0.0	13.4	30.4	32.1	33.2	15.4	0.0	124.5
Fresno inflow	kaf	1.0	0.5	0.2	0.3	0.7	2.5	16.6	32.6	34.9	34.0	16.2	1.9	141.4
Fresno Release	kaf	2.8	2.7	2.8	2.8	2.6	2.8	10.2	19.8	36.5	44.9	24.9	3.0	155.8
Fresno Release	cfs	46	45	46	46	45	46	171	322	613	730	405	50	
Net Content Change	kaf	-1.8	-2.2	-2.6	-2.5	-1.9	-0.3	6.4	12.8	-1.6	-10.9	-8.7	-1.1	-14.4
End-Month Content	kaf	58.0	55.8	53.2	50.7	48.8	48.5	54.9	67.7	66.1	55.2	46.5	45.4	
End-Month Elev	ft	2567.01	2566.39	2565.61	2564.81	2564.17	2564.06	2566.12	2569.66	2569.24	2566.21	2563.37	2562.94	
Project Allotment	f/ac	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.20	0.50	0.60	0.30	0.00	1.70
Project Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	7.3	14.6	36.5	43.9	21.9	0.0	124.2
FBIIP Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	3.0	3.0	7.0
Fresno-Dodson Gain	kaf	0.0	0.0	0.0	0.0	0.0	8.7	9.1	6.3	8.2	1.4	0.4	1.1	35.2
Bowdoin Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.5	0.0	0.0	0.0	0.0	3.5
Transfer to Nelson	kaf	0.0	0.0	0.0	0.0	0.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0	30.0

Nelson Reservoir		Initial Cont 66.5 kaf Elev 2218.57 ft					Maximum Cont 79.0 kaf Elev 2221.61 ft				Minimum Cont 18.0 kaf Elev 2199.91 ft			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Deliv to Nelson	kaf	0.0	0.0	0.0	0.0	0.0	9.0	9.0	9.0	0.0	0.0	0.0	0.0	27.0
Net Content Change	kaf	-1.8	-1.8	-1.4	-0.9	-0.9	8.1	4.5	1.6	-11.0	-17.0	-18.8	-1.8	-40.6
End-Month Content	kaf	64.7	62.9	61.5	60.6	59.7	67.8	72.3	73.9	62.9	45.9	27.1	25.9	
End-Month Elev	ft	2218.11	2217.64	2217.27	2217.03	2216.79	2218.90	2220.02	2220.41	2217.64	2212.76	2205.00	2204.40	
Total Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	2.7	5.6	9.2	15.2	17.6	0.0	50.3
Malta Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	1.8	3.7	9.2	11.0	5.5	0.0	31.2
Glasgow Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.9	4.7	5.6	2.8	0.0	15.9

TABLE MTT16B
MILK RIVER BASIN OPERATING PLAN
Based on October 1 Inflow Estimates

2016 Most Probable Runoff

Sherburne Reservoir			Initial Cont 16.2 kaf Elev 4749.28 ft				Maximum Cont 66.2 kaf Elev 4788.03 ft				Minimum Cont 3.1 kaf Elev 4731.73 ft			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Sherburne Inflow	kaf	4.5	3.9	3.3	2.4	1.9	3.1	9.5	32.9	39.3	17.5	8.6	7.2	134.1
Sherburne Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	12.9	15.4	22.5	17.5	35.3	11.9	115.5
Sherburne Rels	cfs	0	0	0	0	0	0	217	250	378	285	574	200	
Net Content Change	kaf	4.5	3.9	3.3	2.4	1.9	3.1	-3.4	17.5	16.8	0.0	-26.7	-4.7	18.6
End-Month Content	kaf	20.7	24.6	27.9	30.3	32.2	35.3	31.9	49.4	66.2	66.2	39.5	34.8	
End-Month Elevation	ft	4754.01	4757.80	4760.84	4762.97	4764.62	4767.22	4764.36	4777.63	4788.03	4788.03	4770.60	4766.81	

St. Mary River	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
St Mary Runoff	kaf	8.4	4.8	4.8	5.3	5.2	7.6	24.5	95.5	135.0	80.6	32.3	19.0	423.0
Nat Flow @ Boundary	kaf	12.9	8.7	8.1	7.7	7.1	10.7	34.0	128.4	174.3	98.1	40.9	26.2	557.1
St Mary canal rels	cfs	0	0	0	0	0	0	200	299	400	600	600	0	
St Mary canal rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	11.9	18.4	23.8	36.9	36.9	0.0	127.9

Fresno Reservoir			Initial Cont 59.8 kaf Elev 2567.50 ft				Maximum Cont 91.7 kaf Elev 2575.00 ft				Minimum Cont 0.5 kaf Elev 2531.90 ft			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Milk River runoff	kaf	1.7	1.6	0.9	1.1	2.8	15.3	17.8	18.4	15.3	5.3	2.9	6.3	89.4
From St Mary Canal	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.7	16.6	21.4	33.2	33.2	0.0	115.1
Fresno inflow	kaf	1.7	1.6	0.9	1.1	2.8	15.3	28.5	35.0	36.7	38.5	36.1	6.3	204.5
Fresno Release	kaf	2.8	2.7	2.8	2.8	2.6	2.8	11.1	29.2	36.5	52.2	46.9	3.0	195.4
Fresno Release	cfs	46	45	46	46	45	46	187	475	613	849	763	50	
Net Content Change	kaf	-1.1	-1.1	-1.9	-1.7	0.2	12.5	17.4	5.8	0.2	-13.7	-10.8	3.3	9.1
End-Month Content	kaf	58.7	57.6	55.7	54.0	54.2	66.7	84.1	89.9	90.1	76.4	65.6	68.9	
End-Month Elev	ft	2567.20	2566.90	2566.36	2565.85	2565.91	2569.40	2573.46	2574.64	2574.68	2571.84	2569.11	2569.97	
Project Allotment	f/ac	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.40	0.50	0.70	0.60	0.00	2.30
Project Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	7.3	29.2	36.5	51.2	43.9	0.0	168.1
FBIIP Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	3.0	3.0	7.0
Fresno-Dodson Gain	kaf	0.0	0.0	0.0	0.0	0.0	17.4	18.2	12.6	16.4	6.8	2.0	5.4	78.8
Bowdoin Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.5	0.0	0.0	0.0	0.0	3.5
Transfer to Nelson	kaf	0.0	0.0	0.0	0.0	0.0	10.0	20.0	10.0	5.0	0.0	0.0	0.0	45.0

Nelson Reservoir			Initial Cont 66.5 kaf Elev 2218.57 ft				Maximum Cont 79.0 kaf Elev 2221.61 ft				Minimum Cont 18.0 kaf Elev 2199.91 ft			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Deliv to Nelson	kaf	0.0	0.0	0.0	0.0	0.0	9.0	18.0	9.0	4.5	0.0	0.0	0.0	40.5
Net Content Change	kaf	-1.8	-1.8	-1.8	-1.8	-1.7	7.2	13.5	-2.7	-6.5	-14.7	-27.3	-1.2	-40.6
End-Month Content	kaf	64.7	62.9	61.1	59.3	57.6	64.8	78.3	75.6	69.1	54.4	27.1	25.9	
End-Month Elev	ft	2218.11	2217.64	2217.16	2216.68	2216.22	2218.13	2221.45	2220.81	2219.23	2215.32	2205.00	2204.40	
Total Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	2.7	9.9	9.2	12.9	26.1	0.0	60.8
Malta Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	1.8	7.3	9.2	12.9	11.0	0.0	42.2
Glasgow Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.9	3.7	4.7	6.5	5.6	0.0	21.4

TABLE MTT16C
MILK RIVER BASIN OPERATING PLAN
Based on October 1 Inflow Estimates

2016 Maximum Probable Runoff

Sherburne Reservoir		Initial Cont	16.2 kaf	Maximum Cont	66.2 kaf	Minimum Cont	3.1 kaf
		Elev	4749.28 ft	Elev	4788.03 ft	Elev	4731.73 ft

2015		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Sherburne Inflow	kaf	6.5	5.2	3.7	2.8	2.8	3.2	9.5	36.1	54.5	27.9	12.3	6.8	171.3
Sherburne Rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	11.9	24.6	37.8	27.9	27.7	17.9	147.8
Sherburne Rels	cfs	0	0	0	0	0	0	200	400	635	454	450	301	
Net Content Change	kaf	6.5	5.2	3.7	2.8	2.8	3.2	-2.4	11.5	16.7	0.0	-15.4	-11.1	23.5
End-Month Content	kaf	22.7	27.9	31.6	34.4	37.2	40.4	38.0	49.5	66.2	66.2	50.8	39.7	
End-Month Elevation	ft	4755.98	4760.84	4764.10	4766.48	4768.77	4771.29	4769.41	4777.70	4788.03	4788.03	4778.56	4770.75	

St. Mary River	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
St Mary Runoff	kaf	12.7	8.3	6.6	7.3	10.3	18.5	46.1	147.5	215.6	130.5	51.7	15.5	670.6
Nat Flow @ Boundary	kaf	19.2	13.5	10.3	10.1	13.1	21.7	55.6	183.6	270.1	158.4	64.0	22.3	841.9
St Mary canal rels	cfs	0	0	0	0	0	0	0	0	101	600	400	0	
St Mary canal rels	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	36.9	24.6	0.0	67.5

Fresno Reservoir		Initial Cont	59.8 kaf	Maximum Cont	91.7 kaf	Minimum Cont	0.5 kaf
		Elev	2567.50 ft	Elev	2575.00 ft	Elev	2531.90 ft

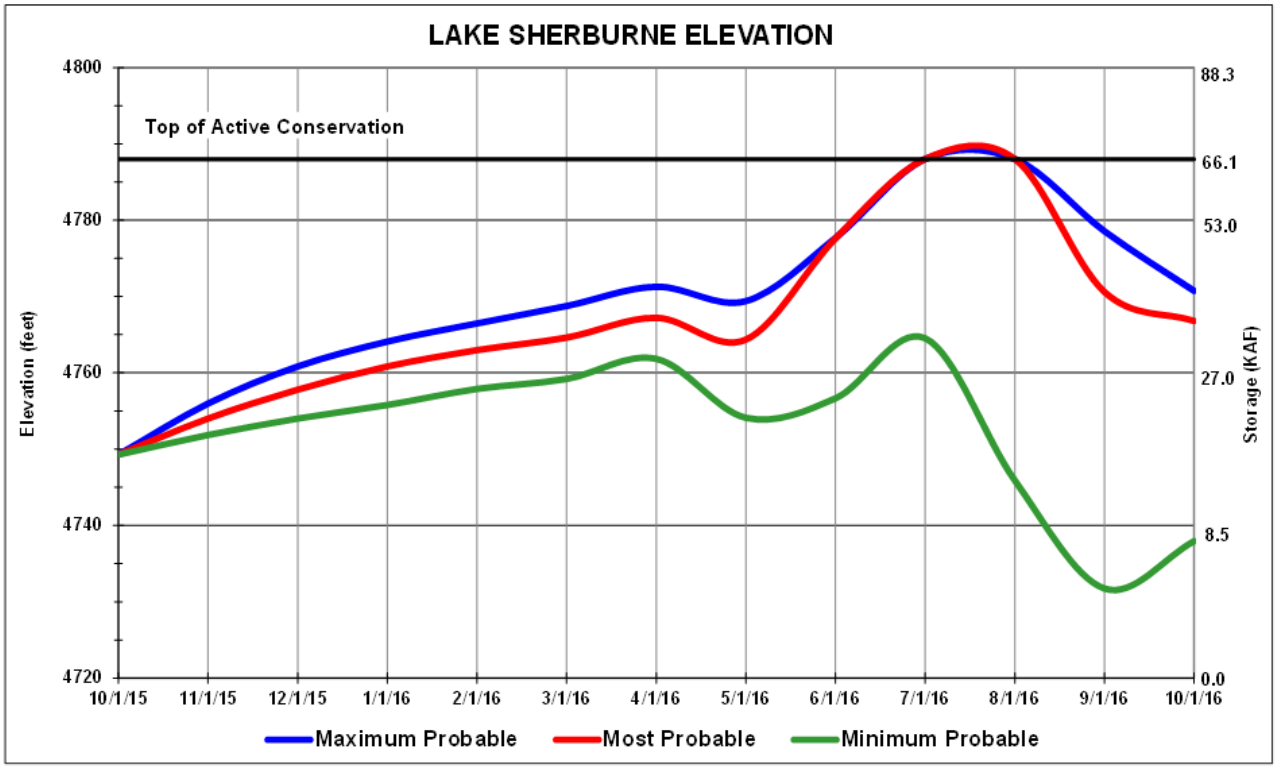
2015		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Milk River runoff	kaf	5.9	3.2	2.0	1.9	4.9	41.3	41.1	40.7	42.9	18.2	7.7	15.0	224.8
From St Mary Canal	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	33.2	22.1	0.0	60.7
Fresno inflow	kaf	5.9	3.2	2.0	1.9	4.9	41.3	41.1	40.7	48.3	51.4	29.8	15.0	285.5
Fresno Release	kaf	2.8	2.7	2.8	2.8	14.4	15.4	27.5	40.7	48.3	52.2	46.9	11.9	268.4
Fresno Release	cfs	46	45	46	46	250	250	462	662	812	849	763	200	
Net Content Change	kaf	3.1	0.5	-0.8	-0.9	-9.5	25.9	13.6	0.0	0.0	-0.8	-17.1	3.1	17.1
End-Month Content	kaf	62.9	63.4	62.6	61.7	52.2	78.1	91.7	91.7	91.7	90.9	73.8	76.9	
End-Month Elev	ft	2568.39	2568.52	2568.31	2568.06	2565.30	2572.16	2575.00	2575.00	2575.00	2574.84	2571.20	2571.96	
Project Allotment	f/ac	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.40	0.50	0.70	0.60	0.00	2.30
Project Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	7.3	29.2	36.5	51.2	43.9	0.0	168.1
FBIIP Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	3.0	3.0	7.0
Fresno-Dodson Gain	kaf	0.0	0.0	0.0	0.0	0.0	26.1	27.3	18.9	24.6	6.8	2.0	5.4	111.1
Bowdoin Demand	kaf	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.5	0.0	0.0	0.0	0.0	3.5
Transfer to Nelson	kaf	0.0	0.0	0.0	0.0	0.0	10.0	20.0	10.0	0.0	0.0	0.0	0.0	40.0

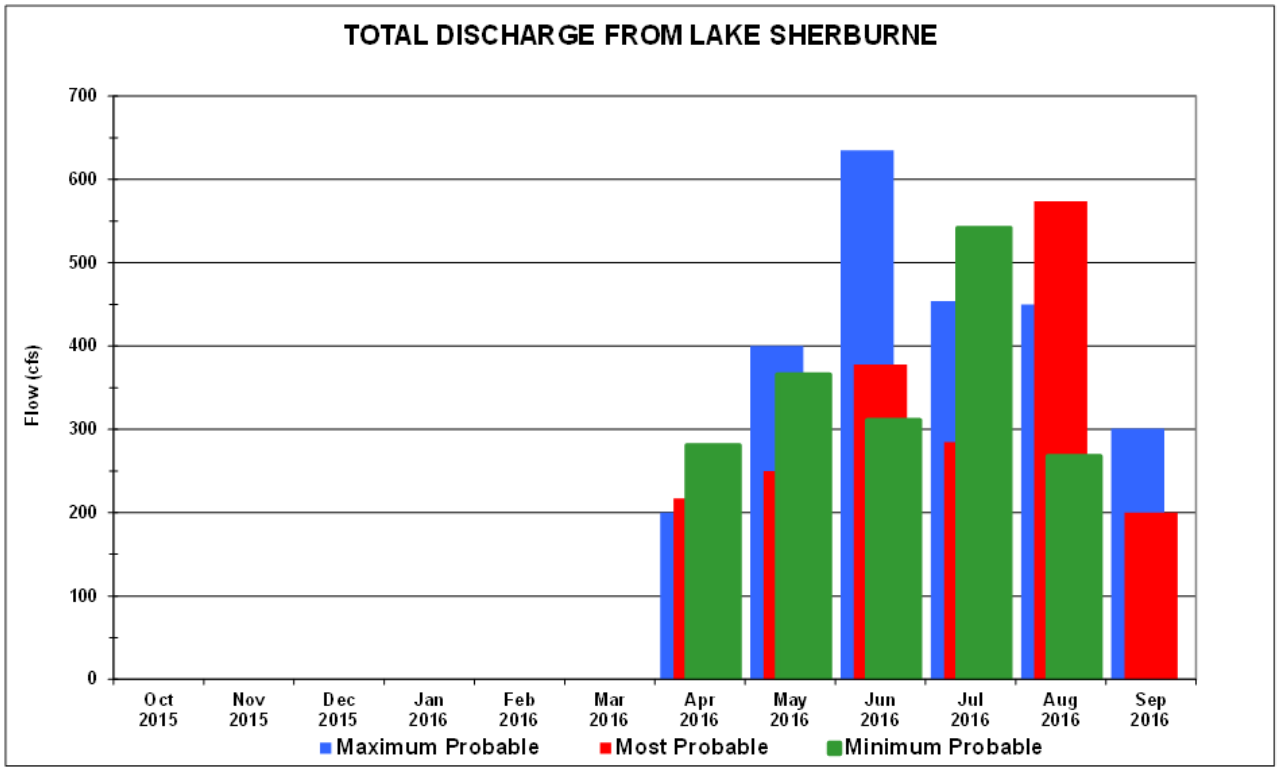
Nelson Reservoir		Initial Cont	66.5 kaf	Maximum Cont	79.0 kaf	Minimum Cont	18.0 kaf
		Elev	2218.57 ft	Elev	2221.61 ft	Elev	2199.91 ft

2015		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Deliv to Nelson	kaf	0.0	0.0	0.0	0.0	0.0	9.0	18.0	9.0	0.0	0.0	0.0	0.0	36.0
Net Content Change	kaf	-1.8	-1.8	-1.8	-1.8	-1.7	7.2	14.2	-0.1	-11.0	-14.7	-26.1	-1.2	-40.6
End-Month Content	kaf	64.7	62.9	61.1	59.3	57.6	64.8	79.0	78.9	67.9	53.2	27.1	25.9	
End-Month Elev	ft	2218.11	2217.64	2217.16	2216.68	2216.22	2218.13	2221.61	2221.59	2218.92	2214.98	2205.00	2204.40	
Total Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	2.0	7.3	9.2	12.9	24.3	0.0	55.7
Malta Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	1.8	7.3	9.2	12.9	11.0	0.0	42.2
Glasgow Delivery	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.9	3.7	4.7	6.5	5.6	0.0	21.4

FIGURE MTG17

LAKE SHERBURNE

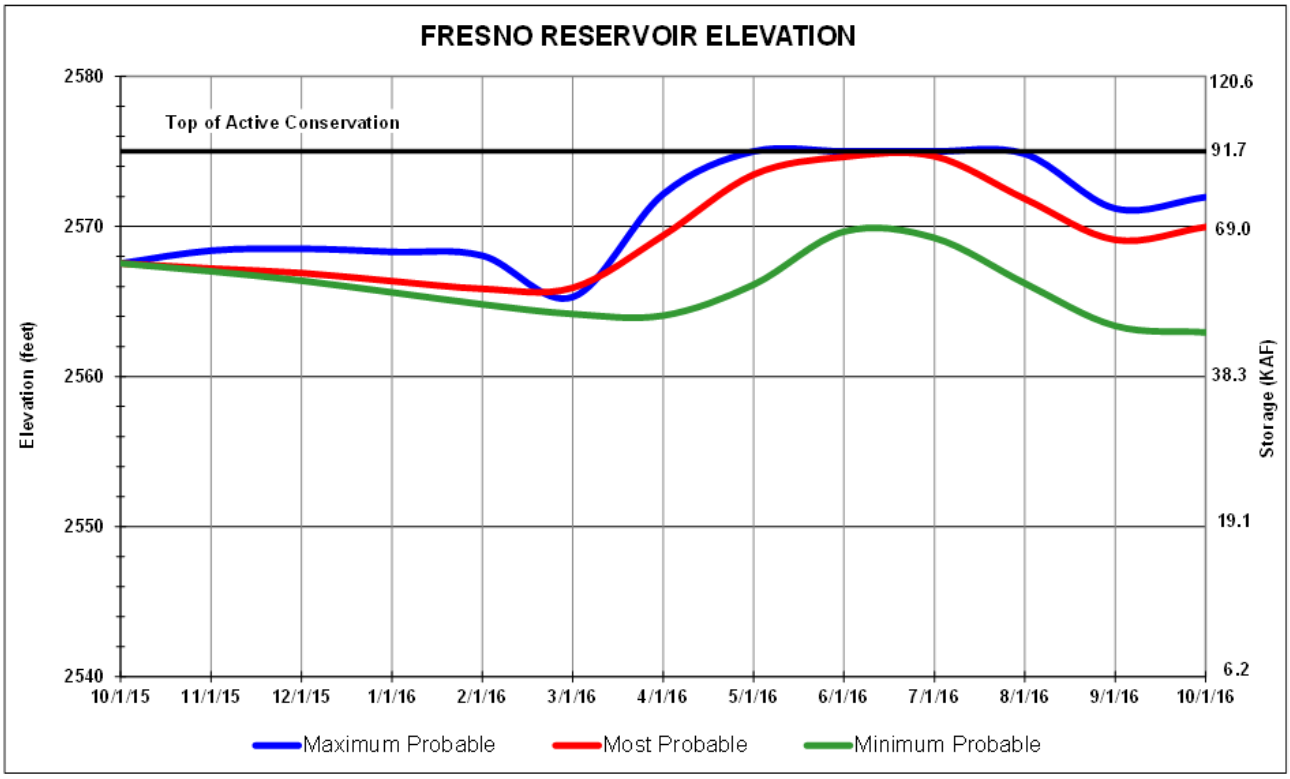


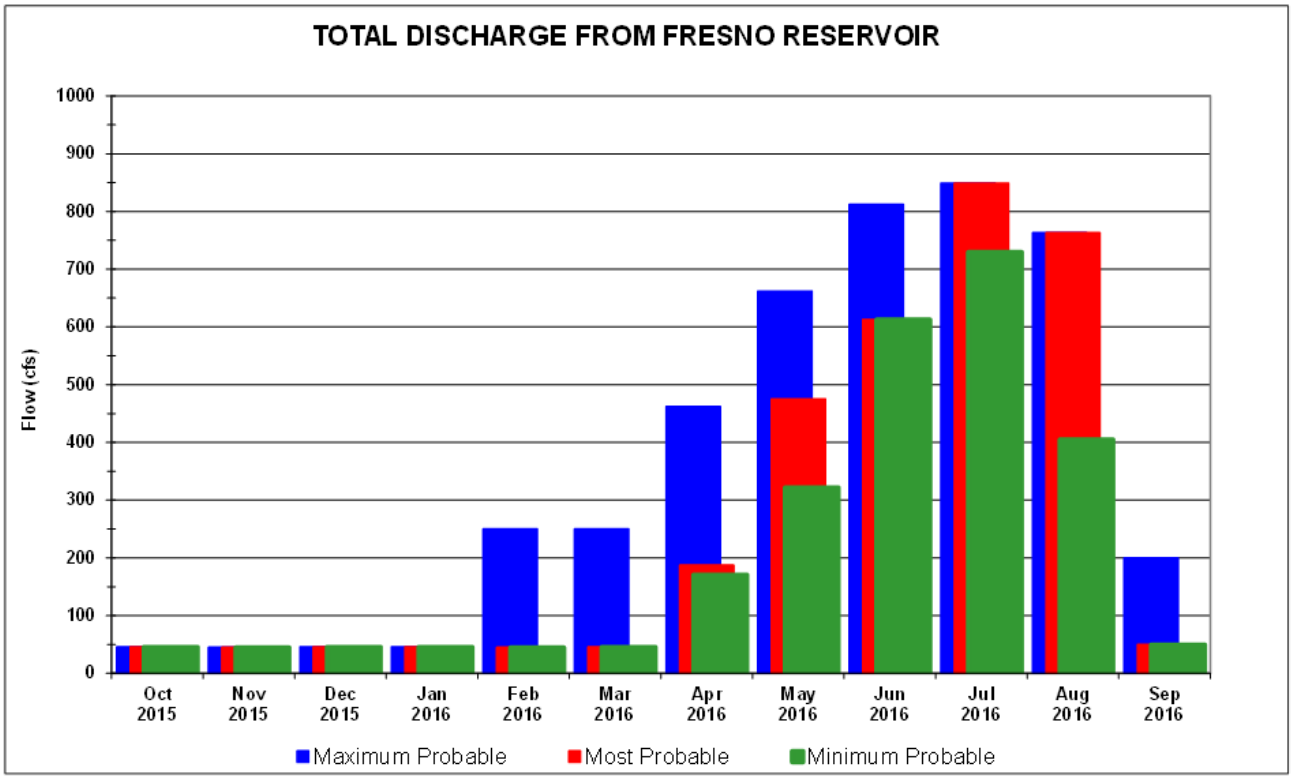


WATER YEAR 2016

FIGURE MTG18

FRESNO RESERVOIR





WATER YEAR 2016

Bighorn Lake and Yellowtail Powerplant

Three operating plans were prepared for 2016 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 to the authorized project purposes and the current general operating criteria established for Yellowtail Dam and Bighorn Lake.

There is a set process for setting the November through March release in the operating criteria for the Yellowtail Unit. The winter release is set in November and depends on end of October storage, total April through October natural accretions between Boysen and Buffalo Bill Reservoirs to Yellowtail Dam, and projected releases out of Boysen and Buffalo Bill. Since the November monthly operating plans provide the best projected operations, they are used in this report.

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 AF and a surface area of 17,279 acres at a reservoir elevation of 3657.00 feet (the top of the spillway gates). Since closure of the dam in November 1965, the reservoir has accumulated a sediment volume of 103,415 AF below a reservoir elevation of 3657.00 feet This volume represents a 7.48 percent reduction in capacity and an average annual reduction of 2,480 AF from November 1965 through July 2007. Sediment was deposited at the annual rate of 0.242 AF 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 an elevation of 3640 feet (1,020,573 AF) 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 an elevation of 3617.00 feet (807,921 AF).

(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 within the top five feet of the joint-use pool 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 of 3617 feet (807,921 AF) by the end of March, depending on the forecasted snowmelt runoff into Bighorn Lake. This target attempts 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. 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 large 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 PPL-MT concerning their operations of Castle Rock Reservoir at Colstrip Powerplant. This release will continue for approximately 10-30 days.

(11) 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.

(12) 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.

(13) 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 AF of stored water in Bighorn Reservoir for use or disposition by the Tribe. The United States shall furnish a maximum of 30,000 AF of water annually to the Tribe in accordance with the limitations set forth in the Compact and the Settlement Act.

Inflows into Bighorn Lake continued to stay above average through the month of August 2015. The river release was kept at 2,500 cfs throughout the months of August 2015 and September 2015. Several shift changes to the river gage were required to keep up with the algae growth. Valley precipitation was 84 percent of average and mountain precipitation was 92 percent of average in August 2015.

Valley and mountain precipitation in September 2015 were well below average at 12 and 32 percent. Storage in Bighorn Lake ended the year with a content of 969,502 AF at an elevation of 3635.71 feet. This was 111 percent of average and 52,080 AF or 4.37 feet lower than at the end of WY 2014. Winter releases were set to 2,450 cfs in November 2015 based on the procedures outlined in the operating criteria.

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 projected releases from Boysen and Buffalo Bill Dams are provided by the Wyoming Area Office.

The most probable November 2015 to March 2016 accretions were forecasted to equal 38 percentile of historic accretions or accretions that have historically been exceeded 62 percent of the time. The April 2016 to October 2016 accretions were estimated to equal 50 percentile of historic accretions or accretions that have historically been exceeded half of the time.

The minimum probable November 2015 to March 2016 accretions were estimated to be about 40,000 AF less than the most probable November 2015 to March 2016 accretions. The April to

June 2016 accretions were estimated to equal 10 percentile historic accretions or accretions that have historically been exceeded 90 percent of the time.

The maximum probable November 2015 to March 2016 accretions were estimated to be about 40,000 AF greater than the most probable November 2015 to March 2016 accretions. The April to October 2016 accretions were estimated to equal 90 percentile historic accretions or accretions that have been exceeded only 10 percent of the time.

In all three runoff conditions, the release from November 2015 through January 2016 is 2,450 cfs. Under the most probable runoff conditions, the river release would stay at 2,450 cfs through April 2016 until increases were made during spring runoff. Storage in Bighorn Lake would be expected to fill to the top of the joint-use pool at an elevation of 3640.0 feet (1,020,573 AF) by the end of July 2016 and essentially remain near full through October 2016. Under the minimum probable runoff scenario, the river release would start decreasing in February 2016 and continue to decrease until it was 1,750 cfs in April 2016. Bighorn Lake would be expected to slowly fill to near elevation 3631.17 feet by the end of June 2016. This would be about 8.8 feet below the top of the joint-use pool. Under the maximum probable runoff conditions, it is anticipated the river release would be increased starting in February 2016 and continue to increase through runoff. Storage would be expected to fill to the top of the joint use pool at an elevation of 3640.0 feet by the end of July 2016.

The average power generation produced annually at Yellowtail Powerplant during 1987-2015 is 751.0 million kilowatt-hours. Under the most probable runoff conditions, power generation produced at Yellowtail Powerplant during WY 2016 is expected to be about 825.8 million kilowatt-hours or 74.8 million kilowatt-hours more than average. Under the minimum probable runoff conditions, power generation would be about 208.1 million kilowatt-hours less than average. Under the maximum probable runoff conditions, power generation would be about 396.8 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 2016 power outages.

TABLE MTT17A
BIGHORN LAKE OPERATING PLAN
Based on November 1 2015 Inflow Estimates

2016 MINIMUM Probable runoff

Bighorn Reservoir — Initial Cont 951.4 kaf, Elev 3634.05 ft; Maximum Cont 1278.9 kaf, Elev 3657.00 ft; Minimum Cont 469.9 kaf, Elev 3547.00 ft

2015		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Boysen Release	kaf	49.1	50.7	50.7	47.5	57.2	49.1	63.0	71.4	70.7	63.0	44.6	36.9	653.9
Boysen Release	cfs	825	825	825	826	930	825	1025	1200	1150	1025	750	600	
Buffalo Bill Release	kaf	12.2	12.6	12.6	11.8	12.6	31.7	101.2	105.0	118.7	104.3	83.3	28.3	634.3
Buffalo Bill Release	cfs	205	205	205	205	205	533	1646	1765	1930	1696	1400	460	
Station Gain	kaf	49.4	31.7	35.9	41.4	59.9	20.3	10.0	1.3	-70.0	-52.3	-0.8	46.2	173.0
Monthly Inflow	kaf	110.7	95.0	99.2	100.7	129.7	101.1	174.2	177.7	119.4	115.0	127.1	111.4	1461.2
Monthly Inflow	cfs	1860	1545	1613	1751	2109	1699	2833	2986	1942	1870	2136	1812	
Turbine Release	kaf	141.6	146.3	146.3	125.4	118.7	101.2	115.2	122.7	131.4	130.3	117.4	106.3	1502.8
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	141.6	146.3	146.3	125.4	118.7	101.2	115.2	122.7	131.4	130.3	117.4	106.3	1502.8
Total Release	cfs	2380	2379	2379	2180	1930	1701	1874	2062	2137	2119	1973	1729	
Spring Flow	kaf	4.2	4.3	4.3	4.0	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	50.9
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.0	0.0	1.3	11.9	22.8	28.1	27.0	17.5	3.0	111.6
Afterbay Rels	kaf	145.8	150.6	150.6	129.4	123.0	105.4	119.5	126.9	135.7	134.6	121.6	110.6	1553.7
Afterbay Rels	cfs	2450	2449	2449	2250	2000	1771	1943	2133	2207	2189	2044	1799	
River Release	kaf	145.8	150.6	150.6	129.4	123.0	104.1	107.6	104.1	107.6	107.6	104.1	107.6	1442.1
River Release	cfs	2450	2449	2449	2250	2000	1749	1750	1749	1750	1750	1749	1750	
Min Release	kaf	145.8	150.6	150.6	129.4	123.0	104.1	107.6	104.1	107.6	107.6	104.1	107.6	1442.1
End-Month Content	kaf	920.5	869.2	822.1	797.4	808.4	808.3	867.3	922.3	910.3	895.0	904.7	909.8	
End-Month Elevation	ft	3630.98	3625.13	3619.02	3615.42	3617.07	3617.05	3624.90	3631.17	3629.89	3628.18	3629.27	3629.83	
Net Change Content	kaf	-30.9	-51.3	-47.1	-24.7	11.0	-0.1	59.0	55.0	-12.0	-15.3	9.7	5.1	-41.6

Yellowtail Power 2015		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Turbine Release	kaf	141.6	146.3	146.3	125.4	118.7	101.2	115.2	122.7	131.4	130.3	117.4	106.3	1502.8
Generation	gwh	53.058	54.433	53.682	44.299	41.627	34.335	40.877	44.726	48.416	47.748	42.232	37.509	542.942
End-Month Power Cap	mw	279.0	273.4	267.6	264.2	265.7	265.7	273.2	279.1	277.9	276.3	277.3	277.9	
% Max Gen		26	25	25	22	19	17	19	22	23	22	20	18	
Ave kwh/af		375	372	367	353	351	339	355	365	368	366	360	353	361
Upstream Generation	gwh	7.195	7.421	7.379	5.994	7.828	11.777	24.778	25.286	27.015	24.188	18.990	8.960	176.811
Total Generation	gwh	60.253	61.854	61.061	50.293	49.455	46.112	65.655	70.012	75.431	71.936	61.222	46.469	719.753

TABLE MTT17B
BIGHORN LAKE OPERATING PLAN
Based on November 1 2015 Inflow Estimates

2016 MOST Probable runoff

Bighorn Reservoir		Initial Cont Elev	951.4 kaf 3634.05 ft			Maximum Cont Elev	1278.9 kaf 3657.00 ft			Minimum Cont Elev	469.9 kaf 3547.00 ft		
	2015	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Boysen Release	kaf	49.1	50.7	50.7	47.5	57.2	49.1	132.8	130.9	122.6	95.7	71.2	61.5	919.0
Boysen Release	cfs	825	825	825	826	930	825	2160	2200	1994	1556	1197	1000	
Buffalo Bill Release	kaf	12.2	12.6	12.6	11.8	12.6	31.7	111.9	174.8	160.7	119.6	107.5	38.4	806.4
Buffalo Bill Release	cfs	205	205	205	205	205	533	1820	2938	2614	1945	1807	625	
Station Gain	kaf	57.2	38.4	43.3	50.7	68.5	39.9	62.2	119.0	-61.3	-45.3	16.4	65.2	454.2
Monthly Inflow	kaf	118.5	101.7	106.6	110.0	138.3	120.7	306.9	424.7	222.0	170.0	195.1	165.1	2179.6
Monthly Inflow	cfs	1991	1654	1734	1912	2249	2028	4991	7137	3610	2765	3279	2685	
Turbine Release	kaf	141.8	146.6	146.5	137.1	146.6	142.9	255.0	255.3	208.4	207.2	191.8	152.4	2131.6
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	141.8	146.6	146.5	137.1	146.6	142.9	255.0	255.3	208.4	207.2	191.8	152.4	2131.6
Total Release	cfs	2383	2384	2383	2383	2384	2402	4147	4290	3389	3370	3223	2479	
Spring Flow	kaf	4.2	4.3	4.3	4.0	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	50.9
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.0	0.0	1.3	11.9	22.8	28.1	27.0	17.5	3.0	111.6
Afterbay Rels	kaf	146.0	150.9	150.8	141.1	150.9	147.1	259.3	259.5	212.7	211.5	196.0	156.7	2182.5
Afterbay Rels	cfs	2454	2454	2453	2453	2454	2472	4217	4361	3459	3440	3294	2548	
River Release	kaf	146.0	150.9	150.8	141.1	150.9	145.8	247.4	236.7	184.6	184.5	178.5	153.7	2070.9
River Release	cfs	2454	2454	2453	2453	2454	2450	4024	3978	3002	3001	3000	2500	
Min Release	kaf	145.8	150.6	150.6	140.9	150.6	145.8	92.2	89.3	169.1	184.5	178.5	153.7	1751.6
End-Month Content	kaf	928.1	883.2	843.3	816.2	807.9	785.7	837.6	1007.0	1020.6	983.4	986.7	999.4	
End-Month Elevation	ft	3631.77	3626.81	3621.87	3618.19	3617.00	3613.60	3621.12	3638.91	3640.00	3636.93	3637.21	3638.28	
Net Change Content	kaf	-23.3	-44.9	-39.9	-27.1	-8.3	-22.2	51.9	169.4	13.6	-37.2	3.3	12.7	48.0

Yellowtail Power	2015	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Turbine Release	kaf	141.8	146.6	146.5	137.1	146.6	142.9	255.0	255.3	208.4	207.2	191.8	152.4	2131.6
Generation	gwh	53.241	54.773	54.120	49.602	53.563	51.558	100.691	104.908	84.529	83.425	76.556	58.821	825.787
End-Month Power Cap	mw	279.7	275.0	270.3	266.8	265.7	262.4	269.6	286.5	287.5	284.6	284.9	285.9	
% Max Gen		26	26	25	25	25	25	47	51	39	39	37	27	
Ave kwh/af		375	374	369	362	365	361	395	411	406	403	399	386	387
Upstream Generation	gwh	7.199	7.433	7.403	6.030	7.896	11.561	32.784	33.678	34.380	31.996	28.476	15.019	223.855
Total Generation	gwh	60.440	62.206	61.523	55.632	61.459	63.119	133.475	138.586	118.909	115.421	105.032	73.840	1049.642

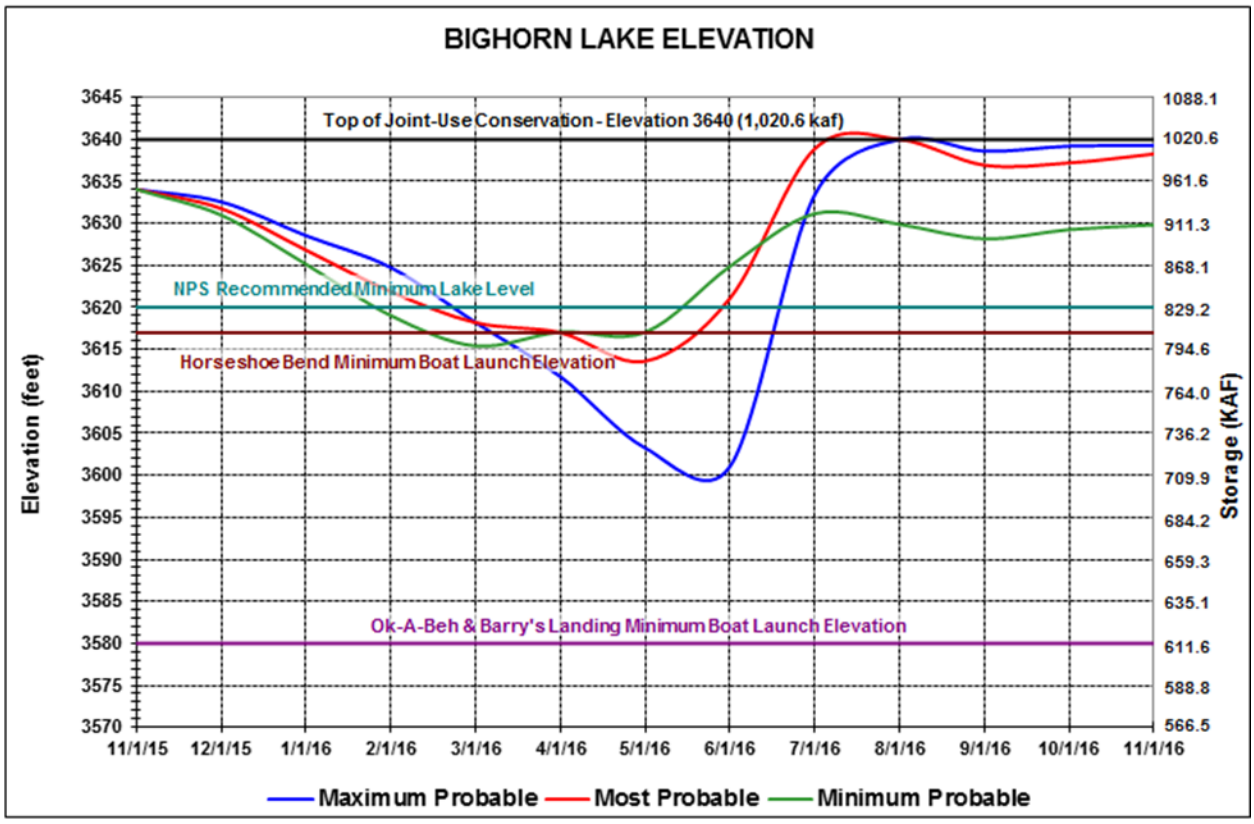
TABLE MTT17C
BIGHORN LAKE OPERATING PLAN
Based on November 1 2015 Inflow Estimates

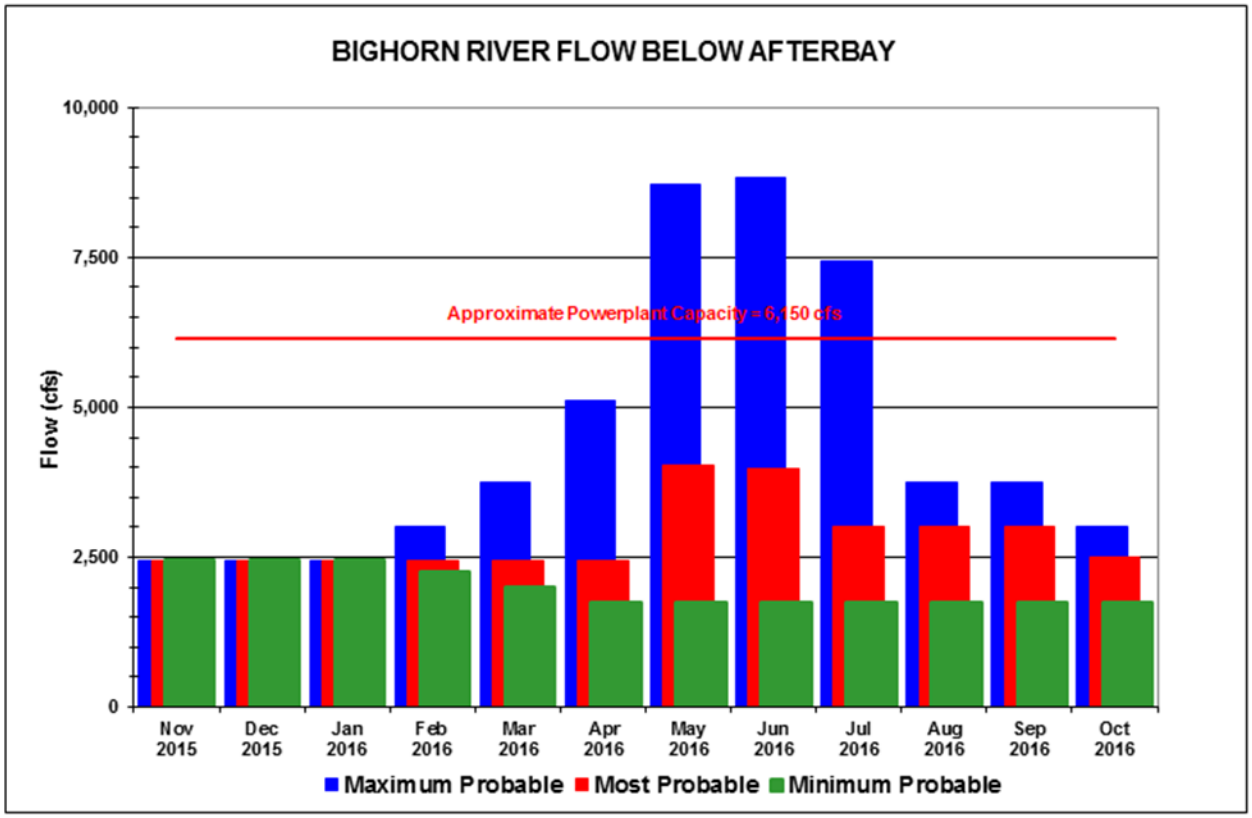
2016 MAXIMUM Probable runoff

Bighorn Reservoir		Initial Cont		951.4 kaf Elev 3634.05 ft			Maximum Cont		1278.9 kaf Elev 3657.00 ft			Minimum Cont	469.9 kaf Elev 3547.00 ft	
2015		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Boysen Release	kaf	49.1	50.7	50.7	47.4	94.7	130.1	196.1	241.1	272.4	131.0	84.1	61.5	1408.9
Boysen Release	cfs	825	825	825	824	1540	2186	3189	4052	4430	2131	1413	1000	
Buffalo Bill Release	kaf	12.2	12.6	12.6	11.8	12.6	72.3	206.3	266.5	284.6	133.8	122.9	38.4	1186.6
Buffalo Bill Release	cfs	205	205	205	205	205	1215	3355	4479	4629	2176	2065	625	
Station Gain	kaf	65.0	45.1	50.8	60.0	77.2	51.0	128.9	266.4	0.1	-28.7	36.7	84.2	836.7
Monthly Inflow	kaf	126.3	108.4	114.1	119.2	184.5	253.4	531.3	774.0	557.1	236.1	243.7	184.1	3432.2
Monthly Inflow	cfs	2123	1763	1856	2072	3001	4259	8641	13008	9060	3840	4096	2994	
Turbine Release	kaf	141.6	146.3	146.3	169.0	226.3	300.8	368.9	357.0	368.9	253.3	236.4	183.2	2898.0
Bypass/Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	173.8	187.5	112.7	0.0	0.0	0.0	474.0
Total Release	kaf	141.6	146.3	146.3	169.0	226.3	300.8	542.7	544.5	481.6	253.3	236.4	183.2	3372.0
Total Release	cfs	2380	2379	2379	2938	3680	5055	8826	9151	7832	4120	3973	2979	
Spring Flow	kaf	4.2	4.3	4.3	4.0	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	50.9
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.0	0.0	1.3	11.9	22.8	28.1	27.0	17.5	3.0	111.6
Afterbay Rels	kaf	145.8	150.6	150.6	173.0	230.6	305.0	547.0	548.7	485.9	257.6	240.6	187.5	3422.9
Afterbay Rels	cfs	2450	2449	2449	3008	3750	5126	8896	9221	7902	4189	4043	3049	
River Release	kaf	145.8	150.6	150.6	173.0	230.6	303.7	535.1	525.9	457.8	230.6	223.1	184.5	3311.3
River Release	cfs	2450	2449	2449	3008	3750	5104	8703	8838	7445	3750	3749	3001	
Min Release	kaf	145.8	150.6	150.6	140.9	230.6	145.8	153.7	119.0	172.2	230.6	223.1	184.5	2047.4
End-Month Content	kaf	936.1	898.2	866.0	816.2	774.4	727.0	715.6	945.1	1020.6	1003.4	1010.7	1011.6	
End-Month Elevation	ft	3632.57	3628.54	3624.74	3618.19	3611.76	3603.26	3601.09	3633.45	3640.00	3638.61	3639.21	3639.28	
Net Change Content	kaf	-15.3	-37.9	-32.2	-49.8	-41.8	-47.4	-11.4	229.5	75.5	-17.2	7.3	0.9	60.2

Yellowtail Power	2015	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Turbine Release	kaf	141.6	146.3	146.3	169.0	226.3	300.8	368.9	357.0	368.9	253.3	236.4	183.2	2898.0
Generation	gwh	53.246	54.853	54.385	63.451	86.799	114.173	150.660	145.800	150.660	103.983	96.796	72.998	1147.804
End-Month Power Cap	mw	280.5	276.6	273.0	266.8	260.7	252.6	250.6	281.3	287.5	286.2	286.8	286.8	
% Max Gen		26	26	25	32	41	55	70	70	70	49	47	34	
Ave kwh/af		376	375	372	375	384	380	408	408	408	411	409	398	396
Upstream Generation	gwh	7.202	7.437	7.425	6.056	10.984	28.758	32.834	33.453	35.229	35.073	29.898	14.992	249.341
Total Generation	gwh	60.448	62.290	61.810	69.507	97.783	142.931	183.494	179.253	185.889	139.056	126.694	87.990	1397.145

BIGHORN LAKE





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 822,000,000 and 1,573,000,000 kilowatt-hours as shown in Table MTT18.

Table MTT18

Estimated Energy Generation During Water Year 2016
(Million Kilowatt-Hours)

Plant	Minimum Probable Runoff	Most Probable Runoff	Maximum Probable Runoff
Canyon Ferry	250	322	429
Yellowtail	572	836	1,144
Total	822	1,158	1,573

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.

OPERATING PLANS

FOR

WATER YEAR 2016

FOR BIGHORN BASIN RESERVOIRS

(BULL LAKE, BOYSEN BUFFALO BILL)

UNDER THE RESPONSIBILITY

OF THE

WYOMING AREA OFFICE

OPERATING PLANS FOR WY 2016

Bull Lake

Three operating plans were prepared for WY 2016 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 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 AF at an elevation of 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 cfs.

(4) The reservoir water surface elevation will be kept below an elevation of 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.

2016 Operating Plans

Storage in Bull Lake at the end of WY 2015 was 63,684 AF at an elevation of 5772.68 feet, which is 42 percent of capacity and 84 percent of the end of September average. Projected inflows for all months of WY 2016 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 during July under the most probable and reasonable maximum inflow scenarios. If reasonable minimum inflows should occur during each month of WY 2016 the reservoir would reach a maximum content of approximately 132,000 AF during June and then decline as demands exceed inflow.

Reasonable minimum condition inflows are estimated to be lower decile flows for all months in WY 2016. 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 WY 2016. 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 WY 2016.

TABLE WYT10A
RIVERTON PROJECT OPERATING PLAN
Based on October 1 Inflow Estimates
2016 Reasonable Minimum Inflow Estimates

Bull Lake Reservoir Operations		Initial Content	63.7 Kaf	Operating Limits:	Max	151.9 Kaf, 5804.82 Feet						
					Min	20.0 Kaf, 5750.93 Feet						
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	4.5	2.0	1.6	1.6	1.2	1.6	3.2	25.8	40.4	27.4	15.2	7.5	132.0
Total Dam Release	kaf	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	39.1	57.2	47.5	157.3
Total Dam Release	cfs	25.	25.	25.	25.	25.	25.	25.	25.	25.	635.	930.	798.	
Excess Release	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	66.7	67.2	67.2	67.3	67.1	67.1	68.8	93.1	132.0	120.3	78.3	38.4	
End-month Elevation	ft	5774.0	5774.2	5774.2	5774.2	5774.1	5774.2	5774.9	5784.6	5798.4	5794.4	5778.8	5760.8	
BLR Net Change	kaf	3.0	0.5	0.1	0.1	-0.2	0.1	1.7	24.3	38.9	-11.7	-42.0	-40.0	-25.3

Wind River		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow abv BL Creek	kaf	28.9	21.4	17.2	15.1	13.8	16.6	24.6	74.4	98.7	60.1	36.3	28.4	435.5
Crowheart Gage Flow	kaf	30.4	22.9	18.7	16.6	15.2	18.1	26.1	75.9	100.2	99.2	93.5	75.9	592.8
Flow Below Div Dam	kaf	16.8	22.9	18.7	16.6	15.2	18.1	6.7	21.9	34.9	30.3	24.8	18.3	245.2
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	0.0	0.0	0.0	0.0	0.0	0.0	3.5	18.8	24.2	27.2	21.1	15.0	109.8
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	253.8	384.6	304.7	270.6	264.9	295.0	103.6	70.0	199.0	70.0	70.0	70.0	

Wyoming Canal		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Diversion	kaf	13.6	0.0	0.0	0.0	0.0	0.0	19.4	54.1	65.3	68.9	68.7	57.6	347.6
North Canal Flow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.8	26.4	31.2	36.5	30.9	27.0	161.8
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	11.6 Kaf	Operating Limits:	Max	29.9 Kaf, 5459.98 Feet						
					Min	10.0 Kaf, 5433.49 Feet						
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	13.6	0.0	0.0	0.0	0.0	0.0	9.6	27.7	34.1	32.4	37.8	30.6	185.8
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	0.0	0.0	0.0	0.0	0.0	0.0	6.7	28.0	33.1	43.9	37.4	33.3	182.4
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	25.0	24.8	24.7	24.6	24.5	24.3	27.0	26.4	27.0	15.0	15.0	12.0	
PBR Net Change	kaf	13.4	-0.2	-0.1	-0.1	-0.1	-0.2	2.7	-0.6	0.6	-12.0	0.0	-3.0	0.4
End-month Elevation	ft	5454.3	5454.1	5454.0	5453.9	5453.8	5453.5	5456.7	5456.0	5456.7	5441.3	5441.3	5437.5	

TABLE WYT10B
RIVERTON PROJECT OPERATING PLAN
Based on October 1 Inflow Estimates
2016 Most Probable Inflow Estimates

Bull Lake Reservoir Operations — Initial Content 63.7 Kaf — Operating Limits: Max 151.9 Kaf, 5804.82 Feet; Min 20.0 Kaf, 5750.93 Feet

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	6.7	3.5	2.5	2.6	1.6	1.9	2.8	29.8	62.3	49.4	20.6	10.4	194.1
Total Dam Release	kaf	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	20.1	42.7	37.8	42.1	154.8
Total Dam Release	cfs	25.	25.	25.	25.	25.	25.	25.	25.	338.	694.	615.	707.	
Excess Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	42.7	0.0	0.0	62.8
End-month Content	kaf	68.9	70.9	71.8	72.9	73.1	73.4	74.7	103.0	145.2	151.9	134.7	103.0	
End-month Elevation	ft	5774.9	5775.7	5776.1	5776.6	5776.6	5776.8	5777.3	5788.2	5802.7	5804.8	5799.2	5788.2	
BLR Net Change	kaf	5.2	2.0	1.0	1.1	0.2	0.4	1.3	28.3	42.2	6.7	-17.2	-31.7	39.3

Wind River		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow abv BL Creek	kaf	35.0	25.1	19.0	16.6	15.4	17.8	29.3	106.1	176.5	117.9	52.5	36.4	647.6
Crowheart Gage Flow	kaf	36.5	26.6	20.5	18.1	16.8	19.3	30.8	107.6	196.6	160.6	90.3	78.5	802.4
Flow Below Div Dam	kaf	22.9	26.6	20.5	18.1	16.8	19.3	11.4	52.9	131.9	79.7	30.6	20.9	451.8
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	0.0	0.0	0.0	0.0	0.0	0.0	3.5	18.8	24.2	27.2	21.1	15.0	109.8
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	353.0	446.8	334.0	295.0	292.7	314.5	182.6	575.2	1830.0	873.8	165.0	114.0	

Wyoming Canal		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Diversion	kaf	13.6	0.0	0.0	0.0	0.0	0.0	19.4	54.7	64.7	80.9	59.7	57.6	350.6
North Canal Flow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.8	26.4	31.2	36.5	30.9	27.0	161.8
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 11.6 Kaf — Operating Limits: Max 29.9 Kaf, 5459.98 Feet; Min 10.0 Kaf, 5433.49 Feet

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	13.6	0.0	0.0	0.0	0.0	0.0	9.6	28.3	33.5	44.4	28.8	30.6	188.8
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	0.0	0.0	0.0	0.0	0.0	0.0	6.7	28.0	33.1	43.9	37.4	33.3	182.4
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	25.0	24.8	24.7	24.6	24.5	24.3	27.0	27.0	27.0	27.0	18.0	15.0	
PBR Net Change	kaf	13.4	-0.2	-0.1	-0.1	-0.1	-0.2	2.7	0.0	0.0	0.0	-9.0	-3.0	3.4
End-month Elevation	ft	5454.3	5454.1	5454.0	5453.9	5453.8	5453.5	5456.7	5456.7	5456.7	5456.7	5445.5	5441.3	

TABLE WYT10C
RIVERTON PROJECT OPERATING PLAN
Based on October 1 Inflow Estimates
2016 Reasonable Maximum Inflow Estimates

Bull Lake Reservoir Operations		Initial Content	63.7 Kaf	Operating Limits:	Max	151.9 Kaf, 5804.82 Feet						
					Min	20.0 Kaf, 5750.93 Feet						
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	7.0	4.0	2.7	2.8	1.8	2.2	4.6	28.4	87.3	76.5	32.6	12.2	262.1
Total Dam Release	kaf	1.5	1.5	1.5	1.5	1.4	1.5	1.5	10.0	39.1	69.4	47.1	46.6	222.8
Total Dam Release	cfs	25.	25.	25.	25.	25.	25.	25.	162.	658.	1129.	766.	783.	
Excess Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4	39.1	69.4	0.0	0.0	117.0
End-month Content	kaf	69.2	71.7	72.8	74.1	74.5	75.1	78.2	96.7	144.8	151.9	137.4	103.0	
End-month Elevation	ft	5775.0	5776.1	5776.5	5777.1	5777.2	5777.5	5778.8	5785.9	5802.6	5804.8	5800.1	5788.2	
BLR Net Change	kaf	5.5	2.5	1.2	1.3	0.4	0.7	3.1	18.4	48.2	7.1	-14.5	-34.4	39.3

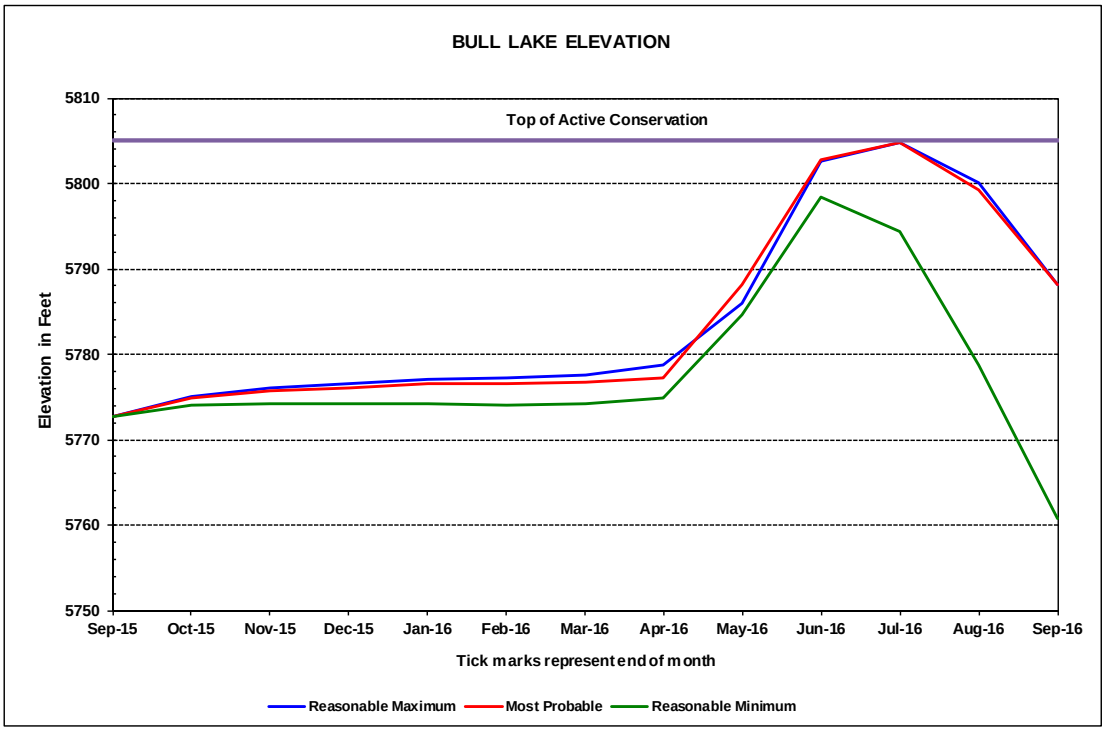
Wind River		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Flow abv BL Creek	kaf	36.0	25.0	20.5	18.9	16.1	19.8	25.4	119.6	304.4	190.6	79.2	43.9	899.4
Crowheart Gage Flow	kaf	37.5	26.5	22.0	20.4	17.5	21.3	26.9	129.6	343.5	260.0	126.3	90.5	1122.2
Flow Below Div Dam	kaf	23.9	26.5	22.0	20.4	17.5	21.3	7.5	74.9	278.8	179.1	69.6	32.9	774.6
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	0.0	0.0	0.0	0.0	0.0	0.0	3.2	16.9	21.8	24.5	19.0	13.5	98.9
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	369.3	445.1	358.4	332.4	304.9	347.0	122.1	963.0	4339.6	2534.7	833.0	341.0	

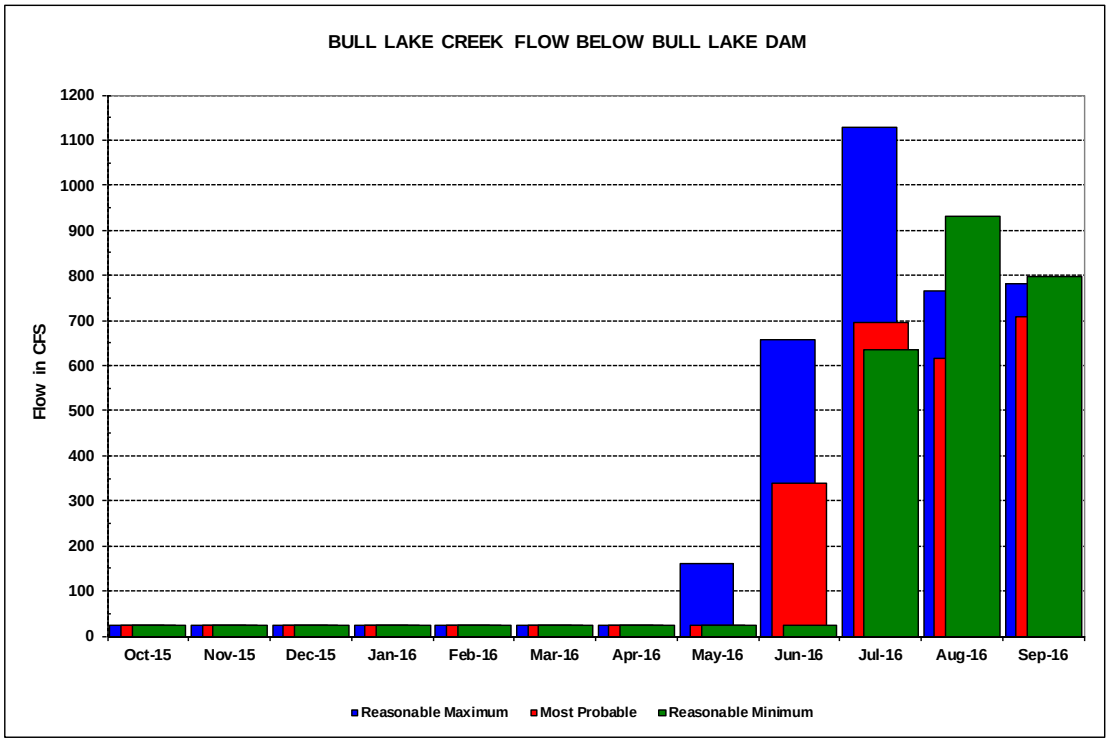
Wyoming Canal		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Diversion	kaf	13.6	0.0	0.0	0.0	0.0	0.0	19.4	54.7	64.7	80.9	56.7	57.6	347.6
North Canal Flow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.8	26.4	31.2	36.5	30.9	27.0	161.8
North Canal Shortage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Pilot Butte Reservoir Operations		Initial Content	11.6 Kaf	Operating Limits:	Max	29.9 Kaf, 5459.98 Feet						
					Min	10.0 Kaf, 5433.49 Feet						
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Reservoir Inflow	kaf	13.6	0.0	0.0	0.0	0.0	0.0	9.6	28.3	33.5	44.4	25.8	30.6	185.8
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	0.0	0.0	0.0	0.0	0.0	0.0	6.7	28.0	33.1	43.9	37.4	33.3	182.4
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	25.0	24.8	24.7	24.6	24.5	24.3	27.0	27.0	27.0	27.0	15.0	12.0	
PBR Net Change	kaf	13.4	-0.2	-0.1	-0.1	-0.1	-0.2	2.7	0.0	0.0	0.0	-12.0	-3.0	0.4
End-month Elevation	ft	5454.3	5454.1	5454.0	5453.9	5453.8	5453.5	5456.7	5456.7	5456.7	5456.7	5441.3	5437.5	

FIGURE WYG6

BULL LAKE RESERVOIR





Boysen Reservoir and Powerplant

Three operating plans were prepared for WY 2016 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 - 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 - February to reduce the risk of ice jams, which may cause flooding or damage to bridges and other structures.

(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 an elevation of 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 an elevation of 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.

2016 Operating Plans

At the beginning of WY 2016, storage was 631,065 AF at an elevation of 4719.01 feet. This was 109 percent of average and about 35,714 AF less than the reservoir held at the beginning of WY 2015. Because the inflow to Boysen Reservoir during August and September was well below average, projected inflows for October, November, and December of WY 2016 have been adjusted to reflect the trends of the last months of WY 2015 under the most probable and maximum inflow conditions. January through September of WY 2016 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 825 cfs is scheduled for the months of October to March. Under most probable inflow conditions, end of month reservoir content is expected to peak in July with 732,000 AF at a reservoir elevation of 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 WY 2016 the reservoir level would fall approximately 197,000 AF short of filling.

Reasonable minimum condition inflows are estimated to be lower decile flows for all months in WY 2016. 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 January through September in WY 2016. 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
2016 Reasonable Minimum Inflow Estimates

Boysen Reservoir		Initial Cont Elev 4719.01 ft		631.1 kaf		Maximum Cont Elev 4732.20 ft	892.2 kaf		Minimum Cont Elev 4685.00 ft	219.2 kaf			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	40.0	41.2	34.7	32.4	30.9	45.8	41.8	63.8	74.0	37.8	25.3	31.8	499.5
Monthly Inflow	cfs	651	692	564	527	537	745	702	1038	1244	615	411	534	
Turbine Release	kaf	52.3	49.1	50.7	50.7	47.5	57.2	49.1	63.0	71.4	70.7	63.0	44.6	669.3
Bypass/Spill	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	52.3	49.1	50.7	50.7	47.5	57.2	49.1	63.0	71.4	70.7	63.0	44.6	669.3
Total Release	cfs	851	825	825	825	826	930	825	1025	1200	1150	1025	750	
End-Month Content	kaf	618.8	610.9	594.9	576.6	560.0	548.6	541.3	542.1	544.7	511.8	474.1	461.3	
End-Month Elevation	ft	4718.29	4717.82	4716.85	4715.70	4714.63	4713.87	4713.39	4713.44	4713.61	4711.36	4708.63	4707.67	
Net Change Content	kaf	-12.3	-7.9	-16.0	-18.3	-16.6	-11.4	-7.3	0.8	2.6	-32.9	-37.7	-12.8	-169.8

Boysen Power Plant	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	kaf	52.3	49.1	50.7	50.7	47.5	57.2	49.1	63.0	71.4	70.7	63.0	44.6	669.3
Turbine Release	cfs	851	825	825	825	826	930	825	1025	1200	1150	1025	750	
Generation	gwh	4.537	4.238	4.346	4.302	3.987	4.749	4.059	5.178	5.857	5.745	4.998	3.469	55.465
Max Generation	gwh	11.904	11.520	11.904	11.904	11.136	11.904	11.520	11.904	11.520	11.904	11.904	11.520	140.544
% Max Generation	%	38	37	37	36	36	40	35	43	51	48	42	30	
Ave kwh/af		87	86	86	85	84	83	83	82	82	81	79	78	83
End-Month Power Cap	mw	16	16	16	16	16	16	16	16	16	15	15	14	

BOYSEN RESERVOIR OPERATING PLAN - Based on October 1 Inflow Estimates
2016 Most Probable Inflow Estimates

Boysen Reservoir		Initial Cont Elev 4719.01 ft		631.1 kaf		Maximum Cont Elev 4732.20 ft	892.2 kaf		Minimum Cont Elev 4685.00 ft	219.2 kaf			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	42.5	44.1	36.9	36.1	37.6	51.2	50.3	152.9	260.4	133.4	68.3	55.4	969.1
Monthly Inflow	cfs	691	741	600	587	654	833	845	2487	4376	2170	1111	931	
Turbine Release	kaf	52.3	49.1	50.7	50.7	47.5	57.2	49.1	133.4	131.6	123.1	103.8	78.4	926.9
Bypass/Spill	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	52.3	49.1	50.7	50.7	47.5	57.2	49.1	133.4	131.6	123.1	103.8	78.4	926.9
Total Release	cfs	851	825	825	825	826	930	825	2170	2212	2002	1688	1318	
End-Month Content	kaf	621.3	616.3	602.5	587.9	578.0	572.0	573.2	592.7	721.5	731.8	696.3	673.3	
End-Month Elevation	ft	4718.44	4718.14	4717.31	4716.41	4715.79	4715.40	4715.48	4716.71	4723.96	4724.50	4722.63	4721.39	
Net Change Content	kaf	-9.8	-5.0	-13.8	-14.6	-9.9	-6.0	1.2	19.5	128.8	10.3	-35.5	-23.0	42.2

Boysen Power Plant	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	kaf	52.3	49.1	50.7	50.7	47.5	57.2	49.1	133.4	131.6	123.1	103.8	78.4	926.9
Turbine Release	cfs	851	825	825	825	826	930	825	2170	2212	2002	1688	1318	
Generation	gwh	4.540	4.247	4.362	4.326	4.023	4.812	4.132	11.082	11.400	11.066	9.309	6.965	80.264
Max Generation	gwh	11.904	11.520	11.904	11.904	11.136	11.904	11.520	11.904	11.520	11.904	11.904	11.520	140.544
% Max Generation	%	38	37	37	36	36	40	36	93	99	93	78	60	
Ave kwh/af		87	86	86	85	85	84	84	83	87	90	90	89	87
End-Month Power Cap	mw	16	16	16	16	16	16	16	16	16	16	16	16	

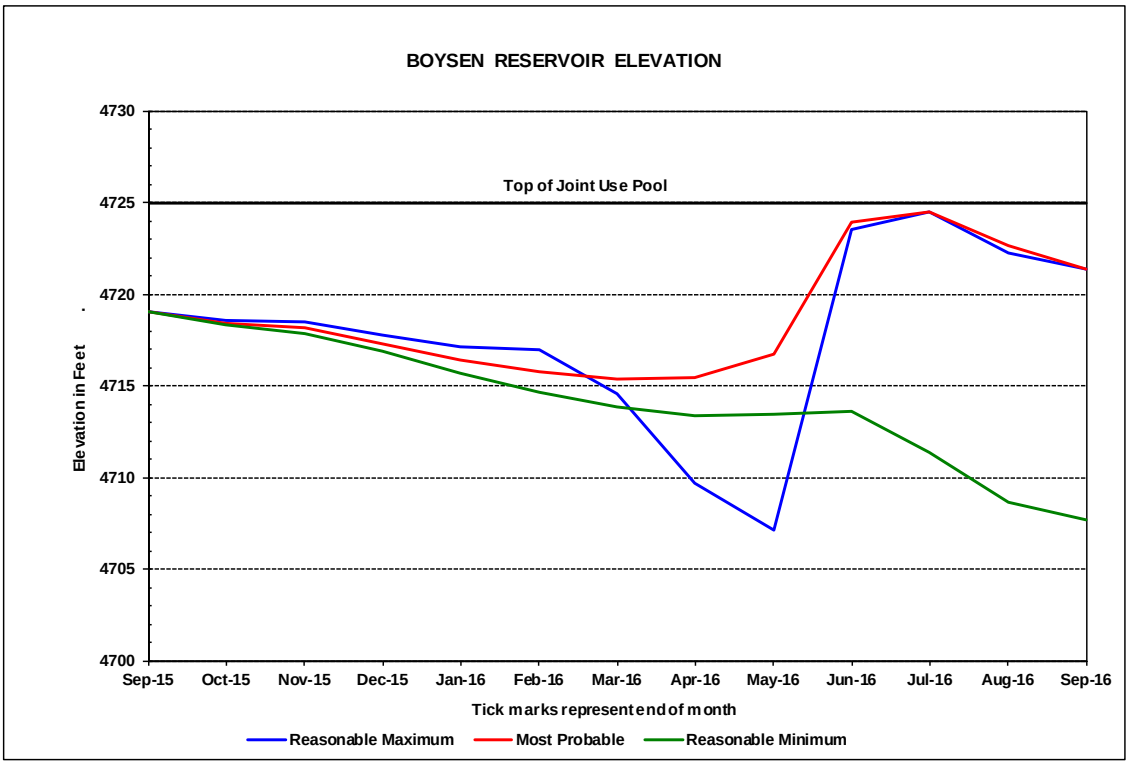
BOYSEN RESERVOIR OPERATING PLAN - Based on October 1 Inflow Estimates
2016 Reasonable Maximum Inflow Estimates

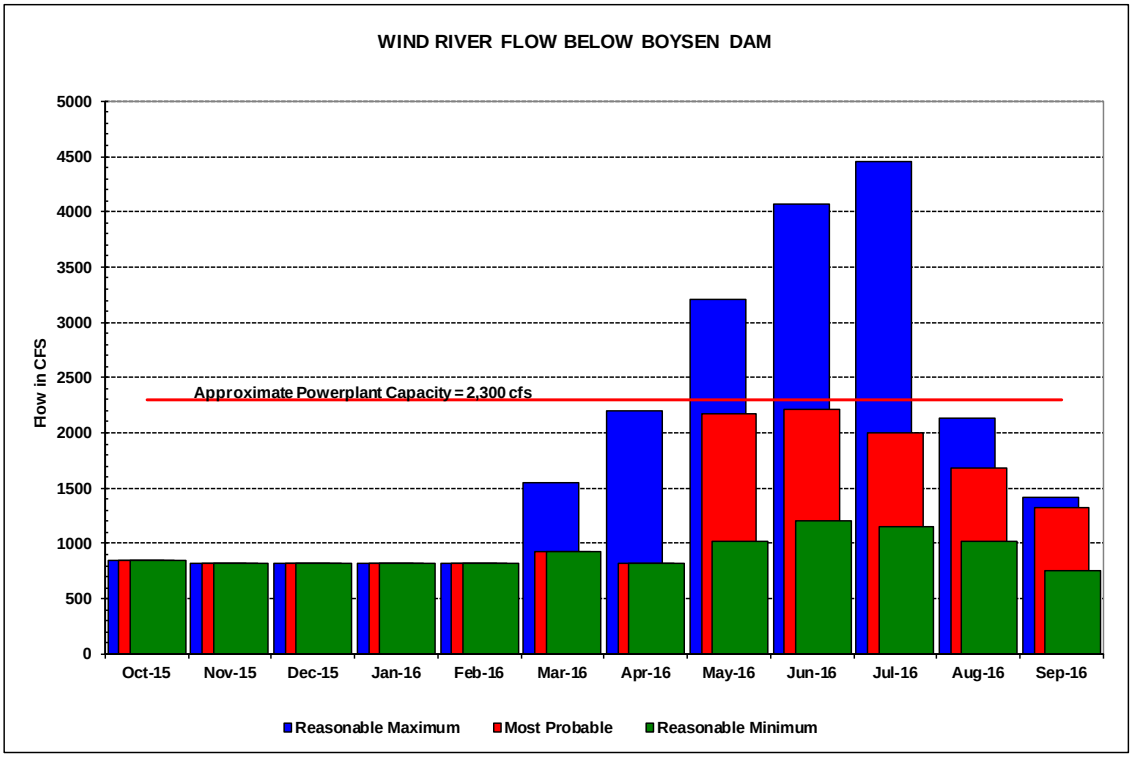
Boysen Reservoir		Initial Cont Elev 4719.01 ft		631.1 kaf		Maximum Cont Elev 4732.20 ft	892.2 kaf		Minimum Cont Elev 4685.00 ft	219.2 kaf			
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	45.0	47.0	39.1	40.3	45.0	56.4	60.3	163.3	500.2	293.1	88.2	67.7	1445.6
Monthly Inflow	cfs	732	790	636	655	782	917	1013	2656	8406	4767	1434	1138	
Turbine Release	kaf	52.3	49.1	50.7	50.7	47.4	95.1	130.7	137.3	137.7	135.5	131.0	84.1	1101.6
Bypass/Spill	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	59.7	104.6	138.1	0.0	0.0	302.4
Total Release	kaf	52.3	49.1	50.7	50.7	47.4	95.1	130.7	197.0	242.3	273.6	131.0	84.1	1404.0
Total Release	cfs	851	825	825	825	824	1547	2196	3204	4072	4450	2131	1413	
End-Month Content	kaf	623.8	621.7	610.1	599.7	597.3	558.6	488.2	454.5	712.4	731.9	689.1	672.7	
End-Month Elevation	ft	4718.58	4718.46	4717.77	4717.14	4717.00	4714.53	4709.67	4707.15	4723.49	4724.50	4722.25	4721.35	
Net Change Content	kaf	-7.3	-2.1	-11.6	-10.4	-2.4	-38.7	-70.4	-33.7	257.9	19.5	-42.8	-16.4	41.6

Boysen Power Plant	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Turbine Release	kaf	52.3	49.1	50.7	50.7	47.4	95.1	130.7	137.3	137.7	135.5	131.0	84.1	1101.6
Turbine Release	cfs	851	825	825	825	824	1547	2196	2233	2314	2204	2131	1413	
Generation	gwh	4.543	4.256	4.378	4.351	4.053	7.937	10.432	10.210	11.242	11.904	11.670	7.447	92.423
Max Generation	gwh	11.904	11.520	11.904	11.904	11.136	11.904	11.520	11.904	11.520	11.904	11.904	11.520	140.544
% Max Generation	%	38	37	37	37	36	67	91	86	98	100	98	65	
Ave kwh/af		87	87	86	86	86	83	80	74	82	88	89	89	84
End-Month Power Cap	mw	16	16	16	16	16	16	14	13	16	16	16	16	

FIGURE WYG7

BOYSEN RESERVOIR





Buffalo Bill Reservoir and Powerplants

Three operating plans were prepared for WY 2016 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 an elevation of 5393.50 feet (646,565 AF) while meeting the release criteria of the Agreement. Under the Agreement, Buffalo Bill Reservoir will be operated to ensure 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, 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.

2016 Operating Plans

Under most probable inflow conditions, projected inflows for October, November, and December of WY 2016 have been adjusted to reflect the well below average trend of the last months of WY 2015 under most probable and maximum inflow conditions. Inflows for January through September of WY 2016 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 WY 2016. 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 January through September of WY 2016 under reasonable maximum conditions.

At the beginning of WY 2016, storage in Buffalo Bill Reservoir was 430,804 AF at an elevation of 5364.67 feet. This was about 79,389 AF less water than the reservoir held at the beginning of WY 2015. Winter releases under minimum and maximum inflow scenarios are the same as under most - probable conditions. Based on the criteria set forth in the Agreement, the release from Buffalo Bill Dam through the winter will be 200 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 WY 2016. 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 137,675,000 kWh) Total generation with reasonable minimum inflows is expected to be 118,197,000 kWh while generation is expected to total 151,185,000 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
2016 Reasonable Minimum Inflow Estimates

Buffalo Bill Reservoir		Initial Cont Elev	427.4 kaf 5364.78 ft			Maximum Cont Elev	643.1 kaf 5393.50 ft			Minimum Cont Elev	41.8 kaf 5259.64 ft		
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	25.3	22.2	14.4	12.8	11.7	15.9	38.8	145.7	199.7	71.6	25.4	20.6	604.1
Shoshone Release	kaf	6.1	6.0	6.1	6.1	2.2	6.1	6.0	6.1	6.0	6.2	6.2	6.0	69.1
Non-Power Release	kaf	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6
Total Flow Below Dam	kaf	6.1	6.0	6.1	6.1	5.8	6.1	6.0	6.1	6.0	6.2	6.2	6.0	72.7
Buffalo Bill Release	kaf	10.2	5.9	6.2	6.2	5.7	6.2	9.6	52.4	49.5	51.0	43.5	32.5	278.9
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	3.7	0.0	0.0	0.0	0.0	0.0	8.8	6.4	7.2	13.2	13.3	11.5	64.1
Heart Mtn Delivery	kaf	8.0	0.0	0.0	0.0	0.0	0.0	7.0	36.0	42.0	48.0	41.0	33.0	215.0
Total Outflow	kaf	28.3	12.2	12.6	12.6	11.8	12.6	31.7	101.2	105.0	118.7	104.3	83.3	634.3
Bypass/Spill	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 Targets	kaf		463.9							628.0	628.0		481.6	
End-Month Content	kaf	424.4	434.4	436.2	436.4	436.3	439.6	446.7	491.2	585.9	538.8	459.9	397.2	
Est Total Storage	kaf	427.8	437.8	439.6	439.8	439.7	443.0	450.1	494.6	589.3	542.2	463.3	400.6	
End-Month Elevation	ft	5364.33	5365.80	5366.06	5366.09	5366.08	5366.55	5367.57	5373.78	5386.38	5380.21	5369.44	5360.20	
Net Change Content	kaf	-3.0	10.0	1.8	0.2	-0.1	3.3	7.1	44.5	94.7	-47.1	-78.9	-62.7	-30.2
Flow Below BB Pwr	kaf	16.3	11.9	12.3	12.3	11.5	12.3	15.6	58.5	55.5	57.2	49.7	38.5	351.6
Flow Below BB Pwr	cfs	265	200	200	200	200	200	262	951	933	930	808	647	
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	23.7	15.5	16.0	16.0	15.0	16.0	28.0	68.6	66.3	74.1	66.7	53.6	459.5
Passing Cody Gage	cfs	385	260	260	260	261	260	471	1116	1114	1205	1085	901	

Shoshone Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Shoshone Release	kaf	6.1	6.0	6.1	6.1	2.2	6.1	6.0	6.1	6.0	6.2	6.2	6.0	69.1
Generation	gwh	1.099	1.083	1.105	1.106	0.399	1.107	1.092	1.127	1.152	1.206	1.166	1.082	12.724
Max Generation	gwh	2.232	2.160	2.232	2.232	0.397	2.232	2.160	2.232	2.160	2.232	2.232	2.160	24.661
% Max Generation		49	50	50	50	101	50	51	50	53	54	52	50	
Ave kwh/af		180	181	181	181	181	181	182	185	192	195	188	180	184
End-Month Power Cap	mw	3	3	3	3	1	3	3	3	3	3	3	3	

Buffalo Bill Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Buffalo Bill Release	kaf	10.2	5.9	6.2	6.2	5.7	6.2	9.6	52.4	49.5	51.0	43.5	32.5	278.9
Generation	gwh	2.747	1.599	1.685	1.686	1.550	1.687	2.602	13.276	12.810	13.104	11.163	8.306	72.215
Max Generation	gwh	13.392	12.960	13.392	13.392	12.528	13.392	12.960	13.392	12.960	13.392	11.383	8.424	151.567
% Max Generation		21	12	13	13	12	13	20	99	99	98	98	99	
Ave kwh/af		269	271	272	272	272	272	271	253	259	257	257	256	259
End-Month Power Cap	mw	18	18	18	18	18	18	18	18	18	18	15	12	

Spirit Mtn Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Spirit Mtn Release	kaf	11.7	0.0	0.0	0.0	0.0	0.0	15.8	34.4	33.3	34.4	34.4	33.3	197.3
Generation	gwh	1.170	0.000	0.000	0.000	0.000	0.000	1.609	2.981	3.071	3.105	3.070	2.906	17.912
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		70	0	0	0	0	0	99	89	95	93	92	90	
Ave kwh/af		100						102	87	92	90	89	87	91
End-Month Power Cap	mw	1	0	0	0	0	0	2	4	5	4	4	4	

Heart Mtn Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Heart Mtn Release	kaf	3.7	0.0	0.0	0.0	0.0	0.0	8.8	6.4	7.2	13.2	13.3	11.5	64.1
Generation	gwh	0.886	0.000	0.000	0.000	0.000	0.000	2.107	1.532	1.724	3.160	3.184	2.753	15.346
Max Generation	gwh	0.893	0.000	0.000	0.000	0.000	0.000	2.160	4.464	4.320	4.464	4.464	4.320	25.085
% Max Generation		99	0	0	0	0	0	98	34	40	71	71	64	
Ave kwh/af		239						239	239	239	239	239	239	239
End-Month Power Cap	mw	1	0	0	0	0	0	3	6	6	6	6	6	

Total Generation	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Generation	gwh	5.902	2.682	2.790	2.792	1.949	2.794	7.410	18.916	18.757	20.575	18.583	15.047	118.197
End-month Power Cap	mw	23	21	21	21	19	21	26	31	32	31	28	25	

TABLE WYT12B
BUFFALO BILL RESERVOIR OPERATING PLAN
Based on October 1 Inflow Estimates
2016 Most Probable Inflow Estimates

Buffalo Bill Reservoir		Initial Cont Elev	427.4 kaf 5364.78 ft			Maximum Cont Elev	643.1 kaf 5393.50 ft			Minimum Cont Elev	41.8 kaf 5259.64 ft		
	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	26.7	22.3	16.2	15.8	13.7	17.4	36.6	142.3	312.6	181.4	51.1	27.9	864.0
Shoshone Release	kaf	6.1	6.0	6.1	6.1	2.2	6.1	6.0	6.1	11.3	11.2	8.5	6.0	81.7
Non-Power Release	kaf	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	57.5	35.8	0.0	0.0	96.9
Total Flow Below Dam	kaf	6.1	6.0	6.1	6.1	5.8	6.1	6.0	6.1	68.8	47.0	8.5	6.0	178.6
Buffalo Bill Release	kaf	6.2	5.9	6.2	6.2	5.7	6.2	14.8	54.1	51.3	51.5	51.2	50.2	309.5
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	7.7	0.0	0.0	0.0	0.0	0.0	3.6	18.6	18.0	18.6	18.6	18.0	103.1
Heart Mtn Delivery	kaf	8.0	0.0	0.0	0.0	0.0	0.0	7.0	36.0	42.0	48.0	41.0	33.0	215.0
Total Outflow	kaf	28.3	12.2	12.6	12.6	11.8	12.6	31.7	115.1	180.4	165.4	119.6	107.5	809.8
Bypass/Spill	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.5	35.8	0.0	0.0	93.3
End-Month Targets	kaf		463.9								629.7		481.6	
End-Month Content	kaf	425.8	435.9	439.5	442.7	444.6	449.4	454.3	481.5	613.7	629.7	561.2	481.6	
Est Total Storage	kaf	429.2	439.3	442.9	446.1	448.0	452.8	457.7	484.9	617.1	633.1	564.6	485.0	
End-Month Elevation	ft	5364.54	5366.02	5366.54	5367.00	5367.27	5367.95	5368.65	5372.45	5389.93	5391.93	5383.16	5372.46	
Net Change Content	kaf	-1.6	10.1	3.6	3.2	1.9	4.8	4.9	27.2	132.2	16.0	-68.5	-79.6	54.2
Flow Below BB Pwr	kaf	12.3	11.9	12.3	12.3	11.5	12.3	20.8	60.2	120.1	98.5	59.7	56.2	488.1
Flow Below BB Pwr	cfs	200	200	200	200	200	200	350	979	2018	1602	971	944	
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	23.7	15.5	16.0	16.0	15.0	16.0	28.0	82.5	141.7	120.8	82.0	77.8	635.0
Passing Cody Gage	cfs	385	260	260	260	261	260	471	1342	2381	1965	1334	1307	

Shoshone Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Shoshone Release	kaf	6.1	6.0	6.1	6.1	2.2	6.1	6.0	6.1	11.3	11.2	8.5	6.0	81.7
Generation	gwh	1.099	1.084	1.107	1.109	0.401	1.113	1.098	1.127	2.160	2.227	1.680	1.142	15.347
Max Generation	gwh	2.232	2.160	2.232	2.232	0.397	2.232	2.160	2.232	2.160	2.232	2.232	2.160	24.661
% Max Generation		49	50	50	50	101	50	51	50	100	100	75	53	
Ave kwh/af		180	181	181	182	182	182	183	185	191	199	198	190	188
End-Month Power Cap	mw	3	3	3	3	1	3	3	3	3	3	3	3	

Buffalo Bill Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Buffalo Bill Release	kaf	6.2	5.9	6.2	6.2	5.7	6.2	14.8	54.1	51.3	51.5	51.2	50.2	309.5
Generation	gwh	1.672	1.600	1.687	1.689	1.555	1.694	4.022	13.366	12.967	13.395	13.379	12.830	79.856
Max Generation	gwh	13.392	12.960	13.392	13.392	12.528	13.392	12.960	13.392	12.960	13.392	13.392	12.960	158.112
% Max Generation		12	12	13	13	12	13	31	100	100	100	100	99	
Ave kwh/af		270	271	272	272	273	273	272	247	253	260	261	256	258
End-Month Power Cap	mw	18	18	18	18	18	18	18	18	18	18	18	18	

Spirit Mtn Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Spirit Mtn Release	kaf	15.7	0.0	0.0	0.0	0.0	0.0	10.6	34.4	33.3	34.4	34.4	33.3	196.1
Generation	gwh	1.571	0.000	0.000	0.000	0.000	0.000	1.091	2.760	2.899	3.243	3.265	2.961	17.790
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		94	0	0	0	0	0	67	82	89	97	98	91	
Ave kwh/af		100						103	80	87	94	95	89	91
End-Month Power Cap	mw	2	0	0	0	0	0	2	4	5	5	5	4	

Heart Mtn Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Heart Mtn Release	kaf	7.7	0.0	0.0	0.0	0.0	0.0	3.6	18.6	18.0	18.6	18.6	18.0	103.1
Generation	gwh	1.843	0.000	0.000	0.000	0.000	0.000	0.862	4.453	4.309	4.453	4.453	4.309	24.682
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		83	0	0	0	0	0	40	100	100	100	100	100	
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	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Generation	gwh	6.185	2.684	2.794	2.798	1.956	2.807	7.073	21.706	22.335	23.318	22.777	21.242	137.675
End-month Power Cap	mw	26	21	21	21	19	21	26	31	32	32	32	31	

TABLE WYT12C
BUFFALO BILL RESERVOIR OPERATING PLAN
Based on October 1 Inflow Estimates
2016 Reasonable Maximum Inflow Estimates

Buffalo Bill Reservoir		Initial Cont	427.4 kaf		Maximum Cont	643.1 kaf		Minimum Cont	41.8 kaf				
		Elev	5364.78 ft		Elev	5393.50 ft		Elev	5259.64 ft				
2015		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Monthly Inflow	kaf	28.0	22.4	17.9	16.7	14.7	21.4	52.9	209.8	446.3	305.1	75.9	34.4	1245.5
Shoshone Release	kaf	6.2	6.0	6.2	6.1	2.2	6.1	7.6	12.5	11.5	11.3	11.3	11.4	98.4
Non-Power Release	kaf	0.0	0.0	0.0	0.0	3.6	0.0	0.0	87.0	147.4	159.6	11.4	9.5	418.5
Total Flow Below Dam	kaf	6.2	6.0	6.2	6.1	5.8	6.1	7.6	99.5	158.9	170.9	22.7	20.9	516.9
Buffalo Bill Release	kaf	6.1	5.9	6.1	6.2	5.7	6.2	49.8	55.5	52.1	51.8	51.2	50.7	347.3
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	7.7	0.0	0.0	0.0	0.0	0.0	9.0	18.6	18.0	18.6	18.6	18.0	108.5
Heart Mtn Delivery	kaf	8.0	0.0	0.0	0.0	0.0	0.0	7.0	36.0	42.0	48.0	41.0	33.0	215.0
Total Outflow	kaf	28.3	12.2	12.6	12.6	11.8	12.6	73.7	209.9	271.3	289.6	133.8	122.9	1191.3
Bypass/Spill	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.0	147.4	159.6	11.4	9.5	414.9
End-Month Targets	kaf		463.9								628.0		481.6	
End-Month Content	kaf	427.1	437.3	442.6	446.7	449.6	458.4	437.6	437.5	612.5	628.0	570.1	481.6	
Est Total Storage	kaf	430.5	440.7	446.0	450.1	453.0	461.8	441.0	440.9	615.9	631.4	573.5	485.0	
End-Month Elevation	ft	5364.74	5366.22	5366.98	5367.57	5367.98	5369.23	5366.26	5366.25	5389.78	5391.72	5384.33	5372.46	
Net Change Content	kaf	-0.3	10.2	5.3	4.1	2.9	8.8	-20.8	-0.1	175.0	15.5	-57.9	-88.5	54.2
Flow Below BB Pwr	kaf	12.3	11.9	12.3	12.3	11.5	12.3	57.4	155.0	211.0	222.7	73.9	71.6	864.2
Flow Below BB Pwr	cfs	200	200	200	200	200	200	965	2521	3546	3622	1202	1203	
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	23.7	15.5	16.0	16.0	15.0	16.0	70.0	177.3	232.6	245.0	96.2	93.2	1016.5
Passing Cody Gage	cfs	385	260	260	260	261	260	1176	2884	3909	3985	1565	1566	

Shoshone Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Shoshone Release	kaf	6.2	6.0	6.2	6.1	2.2	6.1	7.6	12.5	11.5	11.3	11.3	11.4	98.4
Generation	gwh	1.117	1.085	1.126	1.111	0.402	1.118	1.386	2.239	2.160	2.229	2.229	2.165	18.367
Max Generation	gwh	2.232	2.160	2.232	2.232	0.397	2.232	2.160	2.232	2.160	2.232	2.232	2.160	24.661
% Max Generation		50	50	50	50	101	50	64	100	100	100	100	100	
Ave kwh/af		180	181	182	182	183	183	182	179	188	197	197	190	187
End-Month Power Cap	mw	3	3	3	3	1	3	3	3	3	3	3	3	

Buffalo Bill Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Buffalo Bill Release	kaf	6.1	5.9	6.1	6.2	5.7	6.2	49.8	55.5	52.1	51.8	51.2	50.7	347.3
Generation	gwh	1.646	1.601	1.661	1.692	1.558	1.699	12.952	13.392	12.960	13.390	13.388	12.958	88.897
Max Generation	gwh	13.392	12.960	13.392	13.392	12.528	13.392	12.960	13.392	12.960	13.392	13.392	12.960	158.112
% Max Generation		12	12	12	13	12	13	100	100	100	100	100	100	
Ave kwh/af		270	271	272	273	273	274	260	241	249	258	261	256	256
End-Month Power Cap	mw	18	18	18	18	18	18	18	18	18	18	18	18	

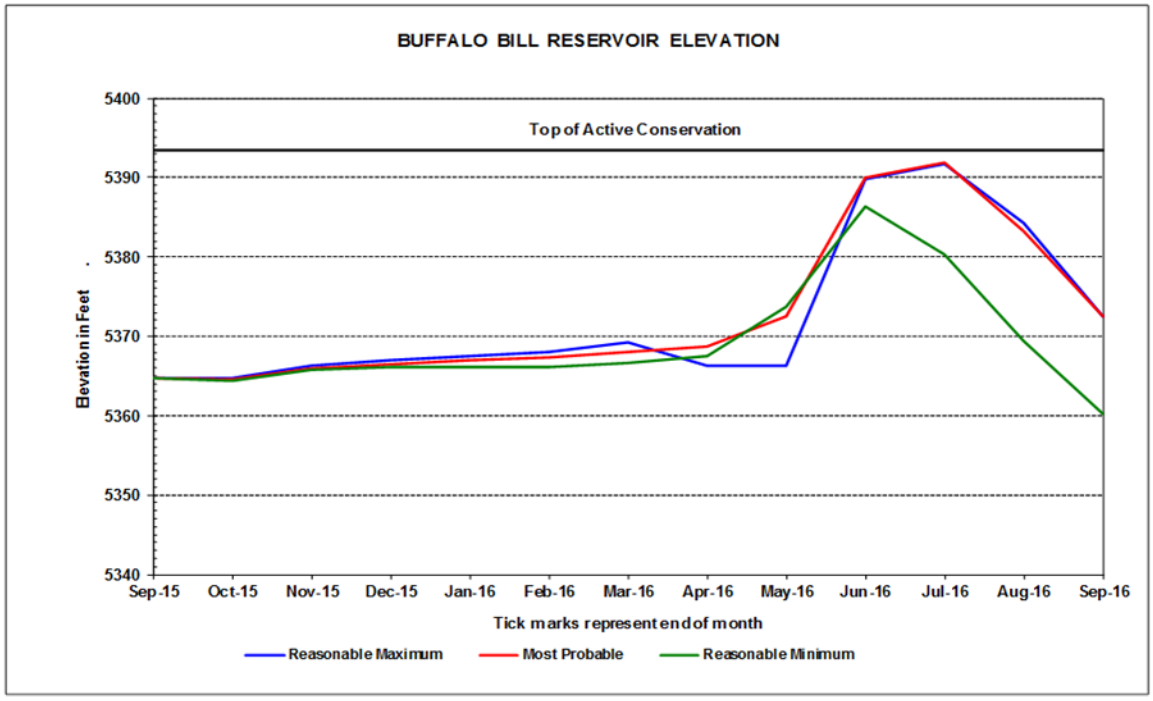
Spirit Mtn Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Spirit Mtn Release	kaf	15.7	0.0	0.0	0.0	0.0	0.0	16.0	34.4	33.3	34.4	34.4	33.3	201.5
Generation	gwh	1.573	0.000	0.000	0.000	0.000	0.000	1.498	2.600	2.792	3.232	3.280	2.972	17.947
Max Generation	gwh	1.674	0.000	0.000	0.000	0.000	0.000	1.620	3.348	3.240	3.348	3.348	3.240	19.818
% Max Generation		94	0	0	0	0	0	92	78	86	97	98	92	
Ave kwh/af		100						94	76	84	94	95	89	89
End-Month Power Cap	mw	2	0	0	0	0	0	2	4	5	5	5	4	

Heart Mtn Power	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Heart Mtn Release	kaf	7.7	0.0	0.0	0.0	0.0	0.0	9.0	18.6	18.0	18.6	18.6	18.0	108.5
Generation	gwh	1.843	0.000	0.000	0.000	0.000	0.000	2.154	4.453	4.309	4.453	4.453	4.309	25.974
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		83	0	0	0	0	0	100	100	100	100	100	100	
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	2015	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Generation	gwh	6.179	2.686	2.787	2.803	1.960	2.817	17.990	22.684	22.221	23.304	23.350	22.404	151.185
End-month Power Cap	mw	26	21	21	21	19	21	26	31	32	32	32	3	

Figure WYG8

BUFFALO BILL RESERVOIR



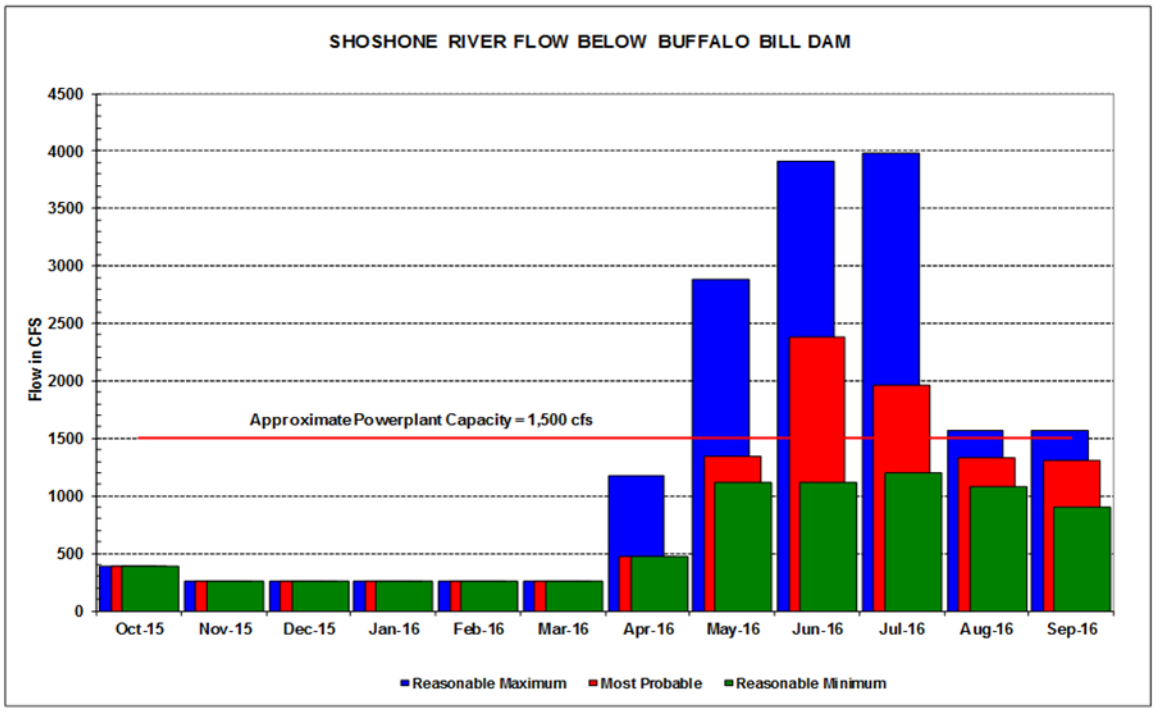


Table WYT13

WATER YEAR 2016 SCHEDULED OUTAGES FOR WYOMING POWERPLANTS

Facilities	Description of Work	Scheduled Dates
BOYSEN		
Unit 1	Annual Maintenance	10/21/15 – 12/12/15
Unit 1	Penstock Inspection	04/04/16 – 04/07/16
Unit 2	Annual Maintenance	01/11/16 – 03/10/16
Unit 2	Penstock Inspection	04/04/16 – 04/07/16
BUFFALO BILL		
Buffalo Bill Powerplant		
Unit 1	Annual Maintenance	11/09/15 - 12/10/15
Unit 2	Annual Maintenance	12/14/15 - 01/07/16
Unit 3	Annual Maintenance	01/11/16 - 01/28/16
Shoshone Powerplant		
Unit 3	Annual Maintenance	02/08/16 - 02/25/16
Heart Mountain Powerplant		
Unit 1	Annual Maintenance	03/07/16 – 03/24/16
Spirit Mountain Powerplant		
Unit 1	Annual Maintenance	10/19/15 - 10/29/16

OPERATING PLANS

FOR

WATER YEAR 2016

FOR RESERVOIRS

(E.A. PATTERSON, HEART BUTTE, JAMESTOWN, DEERFIELD, PACTOLA, ANGOSTURA, KEYHOLE, SHADEHILL, AND BELLE FOURCHE)

UNDER THE RESPONSIBILITY

OF THE

DAKOTAS AREA OFFICE

OPERATING PLANS FOR WY 2016

Dickinson Reservoir

At the beginning of WY 2016, Dickinson Dam and E. A. Patterson Lake (Dickinson Reservoir) had a storage of 4,040 AF at an elevation of 2415.16 feet, which is 4.572 AF, 4.84 feet below the top of the active conservation pool (elevation 2,420.00 feet at 8,612 AF). Dickinson 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 WY 2016, Heart Butte Dam and Lake Tschida (Heart Butte Reservoir) had a storage of 60,156 AF at an elevation of 2062.32 feet, which is 6,986 AF and 2.18 feet below the top of the active conservation pool (elevation of 2,064.50 feet at 67,142 AF). 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 an elevation of 2064.50 feet, the river releases will be maintained at about 10 cfs to ensure live stream flows 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 WY 2016, Jamestown Reservoir had storage of 29,589 AF at an elevation of 1430.61 feet, which is 5,363 AF and 2.61 feet above the top of the active conservation pool (elevation of 1,428.00 feet at 24,226 AF). Water releases will be shut off when Jamestown Reservoir elevation reaches approximately 1429.60 feet and will continue shut throughout the winter until spring runoff requires releases to be made for flood protection. Jamestown Reservoir is normally operated under the following criteria and limitations set forth in the Field Working Agreement between the Corps and Reclamation that reads:

Flood Control Regulation of Joint-Use Pool - Jamestown Reservoir

The joint space between elevations 1428 feet and 1431 feet will be used for seasonal multipurpose regulation. For purposes of flood control storage, Jamestown Reservoir water elevation will be no higher than 1429.8 feet at the beginning of the spring runoff period. That portion of the joint-use pool between elevations 1429.8 feet and 1431.0 feet 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 an elevation of 1429.8 feet msl after September 1 will be evacuated as directed by the Corps of Engineers.

Reclamation has the option of lowering Jamestown Reservoir below an elevation of 1429.8 feet 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

Elevation of 1429.80 feet (Base of flood control zone) to an elevation of 1431.00 feet (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 feet at the time inflows cease.

SEASON: SEPTEMBER 1 TO NOVEMBER 1

Make releases necessary to evacuate the reservoir to an elevation of 1429.80 feet prior to November 1.

SEASON: NOVEMBER 1 TO BEGINNING OF SPRING RUNOFF

Make releases necessary to maintain an elevation of 1429.80 feet.

Deerfield Reservoir

Deerfield Reservoir started WY 2016 at an elevation of 5,905.99 feet and storage of 14,825 AF, which is 2.0 feet and 679 AF below the top of conservation (elevation 5908 feet at 15,654 AF). The reservoir winter draw down was at 14,657 AF on December 1, 2014. A target of 15,000 AF of storage by March 1 will usually dictate the winter release, which is set near December 1. The winter release is based on water usage from Deerfield Reservoir by the Rapid Valley Water Conservancy District (District) and the storage target of 15,000 AF by March 1. The goal is to be near full by May 1 which is the start of the irrigation season. The Rapid Valley Water Conservancy District ordered 0 AF from Deerfield Reservoir during the 2015 irrigation season. This water is replaced to Pactola Reservoir during the winter months being part of the water released from Deerfield Reservoir.

A release of around 15 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 Reservoir storage may be required to meet District irrigation needs in WY 2016.

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 AF 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 WY 2016 at an elevation of 4,574.15 feet and storage of 50,952 AF, which is 5.85 feet and 5,020 AF below the top of conservation (elevation 4580.2 feet at 55,972 AF). Operating criteria established for pactola 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 AF and releases of 15 cfs from October 1 to March 1 and 20 cfs from March 1 to April 30 are established for reservoir content above 29,000 AF. 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 Reservoir, 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 AF
   Year round 20 cfs
2. Reservoir content less than 29,000 AF
   October 1 – April 14 15 cfs
   April 15 - October 1 20 cfs

The winter release for WY 2016 is approximately 35 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 AF 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 Contact Renewal (FONSI Number DK600-00-03). Pactola Reservoir 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 1000 cfs. Releases in excess of 200 cfs when storage is below the top of the conservation pool at an elevation of 4580.20 feet 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 to October 30 sufficient natural flows to meet prior rights of the irrigators will be bypassed through Pactola 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 Pactola Reservoir.

Angostura Reservoir

Angostura Reservoir started WY 2016 at an elevation of 3,182.09 feet and storage of 100,959 AF, which is 5.1 feet and 22,089 AF below the top of active conservation (elevation of 3187.2 feet at 123,048 AF). 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. Water may be released from the facility if Angostura Reservoir is expected to fill to meet irrigation demands; so, excess water is released through the spillway when Angostura Reservoir is nearly full and assured of filling.

Keyhole Reservoir

Keyhole Reservoir started WY 2016 at an elevation of 4,097.04 feet and storage of 168,256 AF, which is 2.3 feet and 20,415 AF below the top of conservation (elevation of 4,099.3 feet at 188,671 AF). At the beginning of WY 2016, South Dakota storage for the Belle Fourche Irrigation District should be 13,371 AF and Wyoming storage for the Crook County Irrigation District should be 16,888 AF.

Releases from Keyhole Reservoir are made for either irrigation requirements or flood control. Releases are not anticipated from Keyhole Reservoir from October to 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 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 releases are 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 Reservoir. Additionally, water contracted by Belle Fourche Irrigation District may be released from Keyhole Reservoir to supplement storage in Belle Fourche Reservoir if necessary. Finally, Crook Country Irrigation District also contracts irrigation water from Keyhole Reservoir.

Shadehill Reservoir

Shadehill Reservoir started WY 2016 at an elevation of 2,270.44 feet and storage of 112,506 AF, which is 1.6 feet and 7,666 AF below the top of conservation (elevation of 2272.0 feet at 120,172 AF). The winter release will be maintained at approximately 50 cfs to prepare Shadehill Reservoir elevation for spring inflows. This release rate will be maintained constant until ice comes out of the channel in the spring to prevent ice jams at the crossings. In the spring, after ice comes out of the channel, the release will be adjusted based on inflows and storage in Shadehill Reservoir. Operation is to fill Shadehill Reservoir in the spring, maintain a near full reservoir during the summer and position Shadehill Reservoir in the fall as discussed in the SOP. Releases for irrigation demands will be met by conservation releases.

Belle Fourche Reservoir

Belle Fourche Reservoir started WY 2016 at an elevation of 2966.60 feet and storage of 112,086 AF, which is 8.4 feet and 60,787 AF below the top of conservation (elevation of 2975.0 feet at 172,873 AF). Normal operation at the Diversion Dam during the winter is to maintain flows in the Inlet Canal to store water in Belle Fourche Reservoir. A bypass of 5 cfs is 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 Belle Fourche Reservoir are planned until irrigation begins in the spring. The intake to the South Canal shall be flushed every two weeks to prevent the buildup of silt against the gate.

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

AND

ENERGY GENERATION

DATA

CORPS OF ENGINEERS MAIN STEM RESERVOIRS

The Missouri River main stem reservoir system, consisting of six reservoirs located in Montana, North Dakota, South Dakota, and Nebraska, provides for the following beneficial uses: flood control, irrigation, navigation, power, municipal and industrial water supply, water quality control, fish and wildlife, and recreation. Based on information from the Corps' 2015-16 AOP, the capacity and storage allocations of the main stem system were updated to current values and are shown in upstream to downstream order as follows:

Reservoir Storage Allocation (1,000 Acre-Feet)

Dam	Permanent	Carryover Multiple Use	Flood Control and Multiple Use	Exclusive Flood Control	Storage
Fort Peck, MT	4,088	10,700	2,704	971	18,463
Garrison, ND	4,794	12,951	4,211	1,495	23,451
Oahe, SD	5,315	13,353	3,208	1,107	22,983
Big Bend, SD	1,631	0	118	61	1,810
Fort Randall, SD	1,469	1,532	1,306	986	5,293
Gavins Point, NE	295	0	79	54	428
Totals	17,592	38,536	11,626	4,674	72,428

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, MT	5	185,250
Garrison, ND	5	583,300
Oahe, SD	7	786,030
Big Bend, SD	8	494,320
Fort Randall, SD	8	320,000
Gavins Point, NE	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 56.1 million acre-feet on the first of March.

Operation of the Missouri River main stem reservoir system provides the following nine beneficial uses: 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 uses as recorded in 2014-2015, 2013-2014, 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 shows damages prevented at September 2015 price levels.

Table CET1:
Main Stem Reservoir System
Comparison of Present and Past Benefits

Use of Regulated Water	Period of Use or Season	Totals	Totals	Long-Term
Navigation[1]	Apr. - Dec.[2]	0.275 million tons (2015)	0.293 million tons (2014)	1.69 million Tons[3]
Flood Damages Prevented	Oct. – Sept.	$980.0 million (2015)	$ 966.0 million (2014)	$ 58.2 billion[4]
Energy	Aug. - Jul.	9.7 billion KWH (Aug. 14-July 15)	8.3 billion KWH (Aug. 13-July 14)	9.4 billion KWH[5]

[1]If sand, gravel, and waterway material are included:
4.409 million tons (2015)
4.671 million tons (2014)
6.68 million tons (1967-2015 average)
[2]End of navigation season extended 10 days in 2014 and 0 days in 2015
[3]1967-2015 average. Peak tonnage shipped in 1977 (3.336 million tons)
[4]Total damages prevented (1938-2015)
[5]1968-2015 Average

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

ENERGY GENERATION

There are 14 Federal powerplants located in the Upper Missouri River Basin that are currently operating. Eight of the power plants are owned and operated by Reclamation and have a total capacity of 348,100 kilowatts. The other six are owned and operated by the Corps and have a total capacity of 2,501,200. Energy generated by the 14 power plants is marketed by the Department of Energy.

Total generation in the combined system in WY 2015 was 10,640.026 million kilowatt hours, 350.803 million kilowatt hours more than in WY 2014. 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	USACE	TOTAL
2015	1316.344	9323.682	10640.026
2014	1559.297	8729.714	10289.223
2013	840.209	8304.700	9144.909
2012	1141.904	10779.032	11920.936
2011	1674.806	11267.588	12942.390
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

A comparison of 2014 and 2015 generation and other data from Missouri Basin Region powerplants is shown on Table CET2. Tables CET3, CET4, and CET5 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, CEG3, and CEG5, respectively, Monthly generation for each month during the past several years is shown graphically on Figures CEG2, CEG4, and CEG6.

For a more detailed account of powerplants operation at Reclamation facilities during the year, refer to the 2015 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
WY 2015

BUREAU PLANTS	INSTALLED CAPACITY (KW)	MILLION KILOWATT-HOURS GENERATED 2013	MILLION KILOWATT-HOURS GENERATED 2014	WATER USED FOR GENERATION IN 2014 1,000 AF	WATER USED FOR GENERATION IN 2014 PERCENT OF TOTAL RELEASE	WATER USED FOR GENERATION IN 2014 KW-HOURS PER AF	RIVER RELEASE 1,000 AF	TOTAL RELEASE 1,000 AF
Canyon Ferry	50,000	333.233	332.551	2,683,292.000	88.38	0.12	2,930,599.0	3,036,127.0
Pilot Butte[1]	1,600	0.000	0.000	0.000	0.00	N/A	149,455.0	149,455.0
Boysen	15,000	58.693	65.408	765,184.000	64.87	0.09	1,179,632.0	1,179,632.0
Buffalo Bill Reservoir Units								
Shoshone	3,000	20.221	19.270	102,323.000	10.52	0.19	See below for	total.
Buffalo Bill	18,000	94.701	67.601	286,043.000	29.42	0.24	See below for	total.
Heart Mountain	6,000	17.263	18.308	86,966.000	8.94	0.21	See below for	total.
Spirit Mountain [2]	4,500	15.325	18.844	178,382.000	18.35	0.11	See below for	total.
Total for Buffalo Bill Reservoir[3]	31,500	147.510	124.023	653,714.000	67.23	0.19	722,556.0	972,298.0
Yellowtail	250,000	1,019.861	794.362	2,199,728.000	78.72	0.36	2,721,370.0	2,794,449.0
Subtotal	**348,100**	**1,559.297**	**1,316.344**	**6,301,918.000**	**77.50**	**0.21**	**7,703,612.0**	**8,131,961.0**
CORPS PLANTS								
Fort Peck	185,250	772.940	794.547	4,905.00	100.00	161.99	4,905.0	4,905.0
Garrison	583,300	2,377.353	2,292.228	14,616.00	100.00	156.83	14,616.0	14,616.0
Oahe	786,030	2,383.928	2,677.675	17,607.00	100.00	152.08	17,607.0	17,607.0
Big Bend	494,320	896.749	984.650	16,321.00	100.00	60.33	16,321.0	16,321.0
Fort Randall	320,000	1,654.914	1,780.622	17,305.00	94.96	102.90	18,224.0	18,224.0
Gavins Point	132,300	644.042	793.960	17,549.00	90.21	45.24	19,454.0	19,454.0
Subtotal	**2,501,200**	**8,729.926**	**9,323.682**	**88,303.00**	**96.90**	**105.59**	**91,127.0**	**91,127.0**
TOTAL MISSOURI BASIN	**2,849,300**	**10,289.223**	**10,640.026**	**6,390,221.00**	**77.71**	**1.67**	**7,794,739.0**	**8,223,088.0**

[1] River Release and Total Release at Pilot Butte Reservoir is Computed Inflow to Pilot Butte due to the location of the powerplant at inlet of supply canal. Pilot Butte Powerplant was placed in "Mothballed" status in June of 2009 and does not generate electricity.

[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)
WY 2015

	BUREAU OF RECLAMATION PLANTS								
				BUFFALO BILL PLANTS					
MONTH	CANYON FERRY	PILOT BUTTE	BOYSEN	HEART MOUNTAIN	SPIRIT MOUNTAIN	BUFFALO BILL	SHOSHONE	YELLOWTAIL	TOTAL
October	31.452	0.000	4.509	2.103	1.886	10.214	1.648	84.075	**135.887**
November	32.068	0.000	2.817	0.000	0.000	2.477	1.572	63.980	**102.914**
December	33.291	0.000	4.456	0.000	0.000	0.000	1.663	61.944	**101.354**
January	32.080	0.000	5.221	0.000	0.000	0.000	1.681	60.843	**99.825**
February	24.965	0.000	4.645	0.000	0.000	0.000	0.074	51.920	**81.604**
March	27.276	0.000	4.914	0.000	0.000	1.670	1.593	69.888	**105.341**
April	23.763	0.000	4.346	1.117	1.003	6.801	1.768	47.990	**86.788**
May	22.239	0.000	6.741	3.288	3.184	9.599	1.868	57.829	**104.748**
June	29.506	0.000	7.657	2.984	3.248	12.863	1.931	98.799	**156.988**
July	25.947	0.000	9.269	3.055	3.368	10.920	2.014	88.549	**143.122**
August	25.741	0.000	5.952	2.947	3.192	8.509	1.843	53.718	**101.902**
September	24.223	0.000	4.881	2.814	2.963	4.548	1.615	54.827	**95.871**
TOTAL	**332.551**	**0.000**	**65.408**	**18.308**	**18.844**	**67.601**	**19.270**	**794.362**	**1,316.344**

	CORPS OF ENGINEERS PLANTS							MISSOURI
MONTH	FORT PECK	GARRISON	OAHE	BIG BEND	FORT RANDALL	GAVINS POINT	TOTAL	BASIN TOTA
October	48.108	210.835	369.642	135.826	203.469	78.595	**1,046.475**	**1,182.362**
November	45.744	190.403	281.594	105.637	184.180	82.568	**890.126**	**993.040**
December	56.788	155.772	170.799	66.905	99.247	56.553	**606.064**	**707.418**
January	61.061	188.262	196.796	74.994	104.120	55.538	**680.771**	**780.596**
February	61.671	200.195	167.049	65.004	92.785	50.475	**637.179**	**718.783**
March	68.239	186.451	218.024	81.783	127.693	62.483	**744.673**	**850.014**
April	65.902	196.121	240.670	88.955	145.676	66.529	**803.853**	**890.641**
May	77.903	215.883	202.104	74.279	165.024	75.276	**810.469**	**915.217**
June	85.531	196.673	189.307	73.637	144.061	65.977	**755.186**	**912.174**
July	82.015	203.301	197.884	68.819	172.772	74.075	**798.866**	**941.988**
August	80.023	194.646	227.744	74.710	170.791	72.809	**820.723**	**922.625**
September	61.562	153.686	216.062	74.101	170.804	53.082	**729.297**	**825.168**
TOTAL	**794.547**	**2,292.228**	**2,677.675**	**984.650**	**1,780.622**	**793.960**	**9,323.682**	**10,640.026**

TABLE CET4
WATER USED FOR POWER GENERATION (1,000 ACRE-FEET)
WY 2015

	BUREAU OF RECLAMATION PLANTS								
				BUFFALO BILL PLANTS					
MONTH	CANYON FERRY	PILOT BUTTE	BOYSEN	HEART MOUNTAIN	SPIRIT MOUNTAIN	BUFFALO BILL	SHOSHONE	YELLOWTAIL	TOTAL
October	248,940.000	53,097.000	0.000	8,864.000	42,198.000	9,676.000	18,246.000	198,224.000	311.000
November	254,872.000	30,142.000	0.000	8,455.000	10,798.000	0.000	0.000	164,357.000	295.000
December	267,089.000	48,792.000	0.000	8,945.000	0.000	0.000	0.000	169,529.000	353.000
January	262,497.000	56,902.000	0.000	9,042.000	0.000	0.000	0.000	169,055.000	380.000
February	209,248.000	51,358.000	0.000	398.000	0.000	0.000	0.000	156,282.000	383.000
March	228,538.000	58,988.000	0.000	8,456.000	10,854.000	0.000	0.000	200,180.000	424.000
April	196,637.000	57,147.000	0.000	9,384.000	28,829.000	5,188.000	9,768.000	154,055.000	407.000
May	178,880.000	82,738.000	0.000	9,915.000	41,112.000	15,511.000	30,236.000	172,830.000	475.000
June	231,249.000	86,422.000	0.000	10,255.000	48,406.000	14,342.000	30,500.000	246,399.000	524.000
July	203,496.000	107,441.000	0.000	10,548.000	42,574.000	14,779.000	31,233.000	235,070.000	496.000
August	202,909.000	71,205.000	0.000	9,783.000	37,222.000	14,024.000	30,292.000	171,263.000	487.000
September	198,937.000	60,952.000	0.000	8,278.000	24,050.000	13,446.000	28,107.000	162,484.000	370.000
TOTAL	**2,683,292.000**	**765,184.000**	**0.000**	**102,323.000**	**286,043.000**	**86,966.000**	**178,382.000**	**2,199,728.000**	**4,905.000**

TABLE CET5
TOTAL RELEASE (1,000 ACRE-FEET)
WY 2015

MONTH	CANYON FERRY	BOYSEN	PILOT BUTTE	BUFFALO BILL	BULL LAKE	ANCHOR	YELLOWTAIL	FORT PECK	GARRISON	OAHE	BIG BEND	FORT RANDALL	GAVINS POINT
October	263.713	53.626	2.175	78.781	9.209	0.085	210.771	311.000	1,325.000	2,395.000	2,215.000	2,803.000	2,799.000
November	254.872	55.150	0.000	24.303	2.903	0.149	164.357	295.000	1,208.000	1,863.000	1,703.000	2,249.000	2,279.000
December	267.120	56.732	0.000	22.011	2.949	0.095	169.529	353.000	990.000	1,141.000	1,065.000	1,036.000	1,210.000
January	290.866	56.902	0.000	21.779	3.401	0.064	169.055	380.000	1,205.000	1,320.000	1,207.000	1,081.000	1,177.000
February	269.712	51.358	0.000	20.164	3.231	0.056	156.282	383.000	1,282.000	1,118.000	1,046.000	904.000	1,056.000
March	263.094	62.877	0.000	22.344	3.125	0.041	200.180	424.000	1,195.000	1,443.000	1,330.000	1,215.000	1,346.000
April	217.625	57.147	3.793	53.722	3.043	0.686	154.055	407.000	1,258.000	1,596.000	1,467.000	1,363.000	1,479.000
May	223.768	118.309	19.422	116.038	3.337	1.806	186.969	475.000	1,401.000	1,322.000	1,231.000	1,542.000	1,685.000
June	272.499	399.520	23.069	298.980	58.068	4.598	753.196	524.000	1,253.000	1,229.000	1,278.000	1,297.000	1,465.000
July	247.493	135.018	38.923	121.398	33.612	2.583	296.308	496.000	1,281.000	1,279.000	1,205.000	1,558.000	1,658.000
August	244.492	72.041	37.508	108.388	59.881	4.916	171.263	487.000	1,240.000	1,484.000	1,304.000	1,571.000	1,626.000
September	220.873	60.952	24.565	84.390	47.799	0.752	162.484	370.000	978.000	1,417.000	1,270.000	1,605.000	1,674.000
TOTAL	**3,036.127**	**1,179.632**	**149.455**	**972.298**	**230.558**	**15.831**	**2,794.449**	**4,905.000**	**14,616.000**	**17,607.000**	**16,321.000**	**18,224.000**	**19,454.000**

TABLE CET6
TOTAL RESERVOIR STORAGE CONTENTS (1,000 ACRE-FEET)
WATER YEARS 2014 AND 2015

BUREAU RESERVOIRS	TOP OF CONSERVATION CAPACITY [3]	DEAD AND INACTIVE CAPACITY	TOTAL STORAGE SEPTEMBER 30		END OF SEPTEMBER PERCENT OF AVERAGE	
			2013	2014	2013	2014
Clark Canyon	174.4	1.1	59.2	55.0	63%	58%
Canyon Ferry	1,891.9	396.0	1,699.2	1,486.0	105%	92%
Helena Valley	10.5	4.6	8.2	8.6	110%	115%
Gibson	96.5	0.0	16.5	5.4	69%	23%
Willow Creek	31.8	1.0	24.3	17.5	121%	87%
Pishkun	46.7	16.0	35.8	21.6	111%	67%
Lake Elwell	925.6	554.3	830.6	819.4	105%	103%
Sherburne	66.1	1.9	31.3	16.2	184%	95%
Fresno	92.9	0.4	71.9	59.8	155%	129%
Nelson	79.0	18.1	71.5	66.5	126%	117%
Bull Lake	152.5	0.7	104.8	63.7	138%	84%
Pilot Butte	33.7	3.8	25.0	15.4	139%	85%
Boysen	741.6	219.2	666.8	631.1	111%	105%
Anchor[1]	17.2	0.1	0.6	0.5	172%	141%
Buffalo Bill[2]	646.6	41.7	510.2	430.8	115%	97%
Bighorn Lake	1,020.6	469.9	1,021.6	969.5	108%	102%
E. A. Patterson	8.6	0.5	7.7	4.0	123%	65%
Lake Tschida	67.1	5.2	60.0	60.2	106%	106%
Jamestown Reservoir	31.5	0.8	26.6	29.6	92%	103%
Shadehill Reservoir	120.2	43.9	119.2	112.5	113%	107%
Angostura Reservoir	123.0	42.2	97.8	101.0	115%	119%
Deerfield Reservoir	15.7	0.2	15.2	14.8	114%	111%
Pactola Reservoir	56.0	1.0	46.5	51.0	100%	110%
Keyhole Reservoir	188.7	6.6	169.3	168.3	191%	190%
Belle Fourche Reservoir	172.9	3.1	116.7	112.1	158%	151%
Subtotal	**6,811.2**	**1,832.3**	**5,836.2**	**5,320.4**		
CORPS RESERVOIRS						
Fort Peck	17,578.0	4,073.0	12,846.0	14,949.0		
Garrison	22,332.0	4,980.0	16,678.0	19,087.0		
Oahe	22,035.0	5,373.0	16,157.0	19,862.0		
Big Bend	1,738.0	1,621.0	1,670.0	1,654.0		
Fort Randall	4,433.0	1,517.0	3,256.0	3,366.0		
Gavins Point	393.0	307.0	367.0	360.0		
Subtotal	**68,509.0**	**17,871.0**	**50,974.0**	**59,278.0**		
TOTAL UPPER MISSOURI BASIN	**75,320.2**	**19,703.3**	**56,810.2**	**64,598.4**		

1 Percent of average content of Anchor Reservoir is based on an 22-year average, 1991-2012.

2 Percent of average content of Buffalo Bill Reservoir is based on an 20-year average, 1993-2012; 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
END-OF-MONTH RESERVOIR CONTENTS (1,000 ACRE-FEET)
WY 2015

RECLAMATION RESERVOIRS	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
CLARK CANYON RESERVOIR	57.8	68.3	77.2	86.0	93.4	102.8	107.8	105.7	96.7	74.0	62.3	59.2
% of Average	55.9%	61.0%	65.5%	69.9%	73.2%	75.8%	75.5%	76.5%	73.6%	66.9%	66.4%	62.8%
CANYON FERRY RESERVOIR	1,475.1	1,502.8	1,471.2	1,484.8	1,454.1	1,408.0	1,323.8	1,520.6	1,901.9	1,841.1	1,743.4	1,699.2
% of Average	90.2%	90.8%	91.8%	96.7%	97.8%	96.3%	89.1%	92.5%	102.7%	103.1%	104.1%	104.9%
HELENA VALLEY RESERVOIR	8.3	8.0	7.7	7.4	7.2	7.1	10.4	8.9	10.2	7.5	9.3	8.2
% of Average	118.8%	119.1%	118.9%	121.5%	125.4%	124.2%	112.5%	97.7%	113.7%	100.6%	114.4%	109.6%
GIBSON RESERVOIR	10.3	10.3	13.6	16.5	18.0	24.1	22.9	83.2	98.2	62.7	29.5	16.5
% of Average	35.1%	30.9%	37.3%	41.3%	41.8%	50.4%	36.5%	92.6%	108.9%	121.9%	109.9%	69.3%
WILLOW CREEK	24.3	27.8	27.9	28.0	28.4	29.0	29.4	30.1	31.5	29.2	24.4	24.3
% of Average	0.1%	129.0%	127.1%	125.8%	125.2%	123.4%	115.9%	105.6%	108.2%	120.5%	119.4%	120.6%
PISHKUN RESERVOIR	22.1	22.1	22.1	22.1	22.1	22.1	46.2	46.0	46.1	42.3	45.8	35.8
% of Average	0.1%	64.5%	64.9%	65.7%	65.6%	64.8%	116.0%	100.2%	110.0%	114.2%	127.8%	110.5%
LAKE ELWELL (TIBER DAM)	812.9	790.2	765.4	745.7	725.7	752.7	760.6	844.6	924.4	904.8	866.5	830.6
% of Average	106.8%	105.2%	103.8%	103.2%	101.4%	104.6%	103.1%	103.3%	105.3%	105.6%	105.4%	104.7%
SHERBURNE LAKE	24.8	28.6	30.5	32.5	33.9	38.0	39.2	50.2	64.2	62.9	39.7	31.3
% of Average	124.4%	114.0%	109.5%	105.3%	102.4%	132.1%	192.6%	146.1%	114.0%	128.6%	141.2%	184.2%
FRESNO RESERVOIR	61.8	60.8	58.2	56.1	54.2	75.6	90.3	78.2	97.0	80.0	74.8	71.9
% of Average	136.4%	134.4%	133.4%	133.0%	124.2%	127.8%	119.3%	107.9%	128.0%	137.6%	164.0%	155.3%
NELSON RESERVOIR	75.7	73.2	71.3	70.1	67.8	70.1	76.3	74.3	75.0	69.8	71.3	71.5
% of Average	128.6%	126.9%	127.5%	129.0%	127.7%	128.6%	124.3%	122.3%	123.5%	126.6%	131.1%	125.6%
BULL LAKE	99.8	100.1	100.1	99.8	99.7	100.2	101.9	120.1	145.6	149.8	132.6	104.8
% of Average	133.5%	132.6%	131.9%	131.2%	131.1%	131.6%	134.4%	135.0%	115.5%	116.2%	128.6%	138.2%
PILOT BUTTE RESERVOIR	28.3	28.0	27.8	27.8	27.7	27.6	29.2	23.7	29.9	29.3	28.5	25.0
% of Average	106.4%	101.0%	100.4%	99.8%	99.0%	93.6%	95.2%	88.0%	100.3%	115.2%	133.6%	139.0%
BOYSEN RESERVOIR	541.6	570.0	581.1	591.2	597.0	607.2	560.0	594.6	726.4	718.2	699.2	666.8
% of Average	90.9%	96.6%	101.5%	106.2%	109.3%	112.5%	106.5%	108.3%	110.7%	110.6%	113.2%	111.3%
ANCHOR RESERVOIR	0.24	0.26	0.29	0.32	0.35	0.38	0.37	2.67	3.10	1.52	0.28	0.56
% of Average[1]	83.5%	104.9%	121.1%	137.1%	132.6%	104.4%	74.9%	174.6%	91.2%	69.3%	46.6%	172.0%
BUFFALO BILL RESERVOIR	482.2	477.7	470.9	464.0	456.2	450.9	391.7	452.9	606.0	625.6	581.9	510.2
% of Average[2]	114.0%	112.1%	110.9%	109.8%	109.0%	108.9%	99.3%	103.4%	106.8%	108.8%	114.5%	114.6%
BIGHORN LAKE	1,025.8	1,021.2	968.7	917.4	884.1	819.9	729.3	768.2	981.6	1,014.6	1,038.6	1,021.6
% of Average	106.7%	109.1%	109.1%	109.0%	108.7%	102.1%	92.4%	88.9%	98.3%	103.3%	110.0%	107.6%
E. A. PATTERSON LAKE	8.2	7.5	8.0	8.9	7.9	8.9	9.2	9.0	8.9	8.4	8.9	7.7
% of Average	136.6%	126.7%	135.5%	150.6%	123.1%	113.0%	116.9%	115.6%	116.7%	117.1%	135.2%	123.1%
LAKE TSCHIDA	64.1	64.4	62.0	64.0	62.3	62.1	61.0	69.8	74.8	66.4	75.9	60.0
% of Average	112.2%	112.0%	108.0%	111.5%	104.3%	91.5%	92.6%	106.7%	114.5%	107.2%	130.3%	105.6%
JAMESTOWN RESERVOIR	27.8	26.0	25.5	25.2	24.5	27.7	36.8	32.8	33.1	30.3	30.4	26.6
% of Average	103.2%	98.2%	96.1%	94.3%	90.8%	76.2%	64.8%	72.2%	88.8%	89.2%	93.0%	92.5%
SHADEHILL RESERVOIR	122.6	111.6	107.2	105.6	112.9	124.6	123.6	116.4	131.5	119.7	121.2	119.2
% of Average	119.6%	110.2%	107.2%	107.0%	111.8%	108.2%	105.6%	99.4%	113.5%	105.0%	110.6%	112.9%
ANGOSTURA RESERVOIR	94.3	97.5	100.0	104.6	110.3	120.2	117.1	120.0	118.1	107.9	97.8	97.8
% of Average	109.0%	111.6%	112.1%	114.5%	115.3%	117.3%	110.7%	109.7%	108.7%	109.0%	110.1%	115.2%
DEERFIELD RESERVOIR	15.5	15.3	15.0	14.9	14.8	15.0	15.6	15.5	15.6	15.5	15.4	15.2
% of Average	115.9%	113.3%	109.4%	107.0%	104.9%	104.4%	108.5%	106.8%	108.0%	109.7%	112.8%	114.1%
PACTOLA RESERVOIR	51.8	53.5	52.8	51.8	51.1	51.9	54.9	55.8	56.4	54.4	53.0	46.5
% of Average	111.1%	114.4%	113.4%	111.3%	109.5%	109.5%	112.9%	111.8%	111.8%	111.8%	112.6%	100.3%
KEYHOLE RESERVOIR	157.2	156.7	157.0	157.9	163.6	173.9	174.8	175.9	175.8	172.3	170.6	169.3
% of Average	177.9%	178.1%	178.0%	178.1%	179.2%	178.2%	176.8%	173.0%	173.2%	179.5%	188.1%	191.0%
BELLE FOURCHE RESERVOIR	135.3	139.9	140.2	141.7	142.2	147.7	155.8	164.8	165.2	143.5	120.1	116.7
% of Average	164.3%	151.6%	138.5%	128.3%	119.1%	110.6%	107.8%	106.1%	110.6%	121.5%	139.9%	157.6%
CORPS RESERVOIRS	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**
FORT PECK RESERVOIR	12,793.0	12,734.0	12,624.0	12,564.0	12,520.0	12,913.0	13,151.0	13,634.0	13,966.0	13,978.0	14,417.0	14,502.0
GARRISON RESERVOIR	16,827.0	16,702.0	16,391.0	16,204.0	15,201.0	15,157.0	15,422.0	15,810.0	17,593.0	17,647.0	16,875.0	16,678.0
OAHE RESERVOIR	17,030.0	16,744.0	16,829.0	16,990.0	17,222.0	17,961.0	18,143.0	18,777.0	20,257.0	20,697.0	21,222.0	20,478.0
BIG BEND RESERVOIR	1,653.0	1,652.0	1,652.0	1,633.0	1,645.0	1,661.0	1,669.0	1,674.0	1,681.0	1,635.0	1,656.0	1,664.0
FORT RANDALL RESERVOIR	2,746.0	2,307.0	2,208.0	2,625.0	2,926.0	3,115.0	3,337.0	3,432.0	3,574.0	3,501.0	3,527.0	3,108.0
GAVINS POINT RESERVOIR	368.0	365.0	361.0	365.0	332.0	332.0	337.0	336.0	345.0	336.0	348.0	334.0

TABLE CET8
MONTHLY INFLOW AMOUNTS (1,000 AF)
WY 2015

RECLAMATION RESERVOIRS	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
CLARK CANYON RESERVOIR	11.6	12.1	10.4	10.4	8.9	11.1	6.7	10.9	18.3	12.7	9.4	10.0	132.6
% of Average	55.6%	60.4%	62.5%	73.2%	70.3%	67.7%	39.2%	51.4%	57.9%	49.2%	50.0%	55.7%	56.8%
CANYON FERRY RESERVOIR	209.5	200.4	162.5	192.7	152.7	293.8	377.1	733.9	677.9	267.8	158.9	190.4	3,617.7
% of Average	82.3%	75.6%	74.8%	90.2%	73.9%	116.1%	123.2%	147.3%	98.8%	91.1%	103.5%	104.2%	102.5%
HELENA VALLEY RESERVOIR	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	5.3	13.6	18.1	17.4	20.1	9.4	82.3
% of Average	N/A	N/A	N/A	N/A	N/A	N/A	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
GIBSON RESERVOIR	13.6	10.7	8.8	8.2	6.5	11.8	40.1	201.1	177.8	68.6	24.7	15.6	587.4
% of Average	84.5%	64.5%	64.7%	68.2%	60.3%	80.8%	95.5%	136.8%	117.5%	122.2%	103.1%	90.2%	112.7%
WILLOW CREEK	2.9	3.4	0.1	0.1	0.4	0.6	0.4	0.6	1.5	-0.3	-0.5	-0.1	9.2
% of Average	0.4%	0.5%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	N/A	N/A	N/A	0.1%
PISHKUN RESERVOIR	0.0	0.0	0.0	0.0	0.0	0.0	24.1	22.4	70.5	82.4	53.2	26.7	279.3
% of Average	N/A	N/A	N/A	N/A	N/A	N/A	0.4%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%
LAKE ELWELL (TIBER DAM)	18.2	13.2	10.7	15.7	11.9	63.7	48.5	153.4	210.8	67.9	23.1	15.6	652.7
% of Average	108.6%	62.0%	63.2%	98.6%	54.8%	165.0%	92.0%	123.7%	156.9%	162.2%	186.9%	135.1%	128.5%
SHERBURNE LAKE	7.2	3.8	1.9	2.0	1.4	4.1	6.3	38.7	55.2	27.0	9.9	4.5	161.9
% of Average	109.6%	55.3%	55.4%	66.7%	59.2%	116.2%	57.7%	125.7%	149.2%	144.9%	112.4%	74.1%	117.4%
FRESNO RESERVOIR	4.4	1.9	0.3	1.0	0.6	42.8	27.6	21.3	71.7	36.1	34.8	19.0	261.4
% of Average	61.2%	86.8%	36.2%	108.8%	16.1%	179.7%	92.8%	49.4%	146.7%	106.5%	115.7%	92.1%	106.7%
NELSON RESERVOIR	4.5	-2.5	-1.9	-1.3	-2.2	2.2	6.3	9.9	15.1	5.7	16.0	0.2	51.9
% of Average	0.1%	N/A	N/A	N/A	N/A	0.2%	0.1%	0.1%	0.2%	0.1%	0.2%	0.0%	0.1%
BULL LAKE	14.6	3.9	2.1	1.2	1.1	1.7	3.8	34.5	56.7	52.5	21.2	10.9	204.3
% of Average	260.4%	122.9%	86.4%	57.7%	69.9%	95.8%	101.3%	123.3%	92.1%	113.6%	101.4%	114.7%	109.4%
PILOT BUTTE RESERVOIR[1]	8.4	-0.3	-0.1	0.0	-0.1	-0.1	5.5	18.1	39.0	35.5	30.7	27.5	164.1
% of Average	75.6%	N/A	N/A	N/A	N/A	N/A	77.6%	77.0%	104.9%	86.2%	94.7%	117.6%	91.7%
BOYSEN RESERVOIR	91.3	57.1	40.7	39.1	32.3	50.5	55.0	190.1	273.5	175.9	73.5	50.2	1,129.2
% of Average	154.8%	116.4%	108.3%	106.7%	86.4%	97.1%	112.5%	158.5%	106.8%	134.3%	128.6%	96.0%	120.5%
ANCHOR RESERVOIR	1.14	0.59	0.46	0.05	0.03	0.03	0.59	5.06	6.08	3.14	1.57	0.84	19.58
% of Average[2]	0.2%	0.2%	0.3%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.7%	0.2%	0.1%
BUFFALO BILL RESERVOIR	52.7	25.8	14.8	14.6	11.8	23.5	71.6	317.4	388.5	284.9	70.2	37.1	1,312.8
% of Average	204.6%	120.4%	94.8%	99.7%	90.3%	124.0%	174.9%	200.0%	129.1%	177.7%	156.4%	149.5%	156.3%
BIGHORN LAKE	185.7	130.3	96.1	97.3	102.2	209.5	316.2	534.3	522.7	351.7	199.9	220.0	2,965.9
% of Average	110.6%	101.0%	87.8%	88.2%	91.4%	141.9%	222.5%	209.6%	128.0%	138.4%	132.2%	132.7%	137.8%
E. A. PATTERSON LAKE	24.0	1.4	0.5	3.1	1.6	7.9	13.9	7.6	1.8	0.1	7.9	0.8	70.5
% of Average	5915.6%	592.1%	315.9%	1388.0%	97.2%	120.2%	417.2%	670.0%	98.9%	10.2%	1667.9%	509.8%	409.8%
LAKE TSCHIDA	26.8	4.7	1.5	5.1	6.5	34.4	58.5	28.5	25.8	7.1	50.0	10.6	259.5
% of Average	1796.6%	313.7%	155.3%	598.6%	133.7%	117.3%	347.6%	520.7%	355.4%	193.3%	3721.4%	4014.0%	351.5%
JAMESTOWN RESERVOIR	4.0	2.7	1.3	0.3	0.0	3.2	22.6	23.6	13.7	5.9	2.8	0.9	81.2
% of Average	247.1%	205.2%	216.2%	121.7%	N/A	29.8%	62.2%	255.8%	304.9%	107.0%	58.1%	46.7%	104.6%
SHADEHILL RESERVOIR	41.7	10.2	3.2	4.3	12.7	58.6	38.4	20.0	44.7	13.0	8.1	14.0	268.9
% of Average	3971.0%	879.2%	345.6%	474.6%	291.2%	230.2%	206.0%	158.3%	753.0%	296.0%	988.2%	N/A	353.8%
ANGOSTURA RESERVOIR	21.2	3.6	2.7	4.9	5.8	24.5	10.7	21.0	8.6	0.3	2.6	2.9	108.9
% of Average	879.2%	113.0%	137.2%	214.0%	115.1%	215.6%	126.6%	157.7%	55.5%	10.4%	155.0%	271.4%	156.4%
DEERFIELD RESERVOIR	1.2	0.9	0.8	0.8	0.7	1.0	1.6	2.0	1.4	1.2	1.1	1.0	13.6
% of Average	158.8%	127.0%	109.8%	111.9%	105.5%	101.0%	122.2%	127.9%	98.8%	115.9%	139.6%	145.6%	120.8%
PACTOLA RESERVOIR	7.9	5.4	3.2	2.6	2.2	3.9	6.8	12.0	8.8	6.3	5.5	4.1	68.7
% of Average	365.5%	289.5%	210.4%	167.5%	142.3%	139.2%	149.8%	173.3%	130.9%	166.4%	189.6%	191.6%	178.5%
KEYHOLE RESERVOIR	7.2	-0.5	0.3	0.9	5.7	10.2	1.0	1.1	-0.1	-3.5	-1.7	-1.3	19.3
% of Average	28720.0%	N/A	173.2%	183.8%	219.1%	163.6%	45.5%	26.3%	N/A	N/A	N/A	N/A	144.4%
BELLE FOURCHE RESERVOIR	38.8	5.7	0.3	1.5	0.5	5.5	8.1	10.1	18.4	8.2	9.0	12.9	119.1
% of Average	337.0%	58.1%	3.3%	16.6%	5.7%	38.6%	69.1%	59.9%	178.8%	168.7%	414.8%	270.2%	104.9%

FIGURE CEG1

ANNUAL GENERATION AT USBR PLANTS

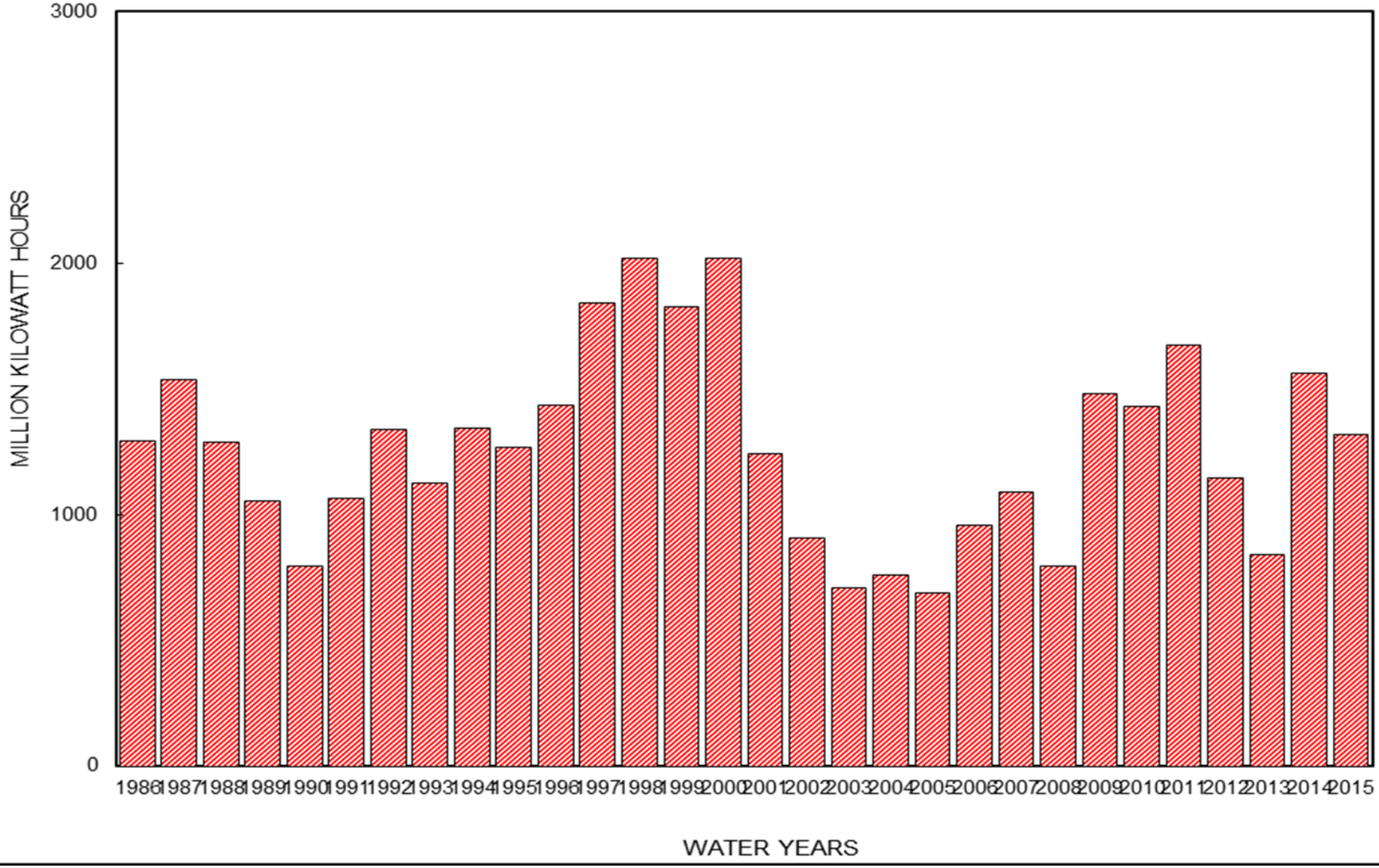


FIGURE CEG2

MONTHLY GENERATION AT USBR PLANTS

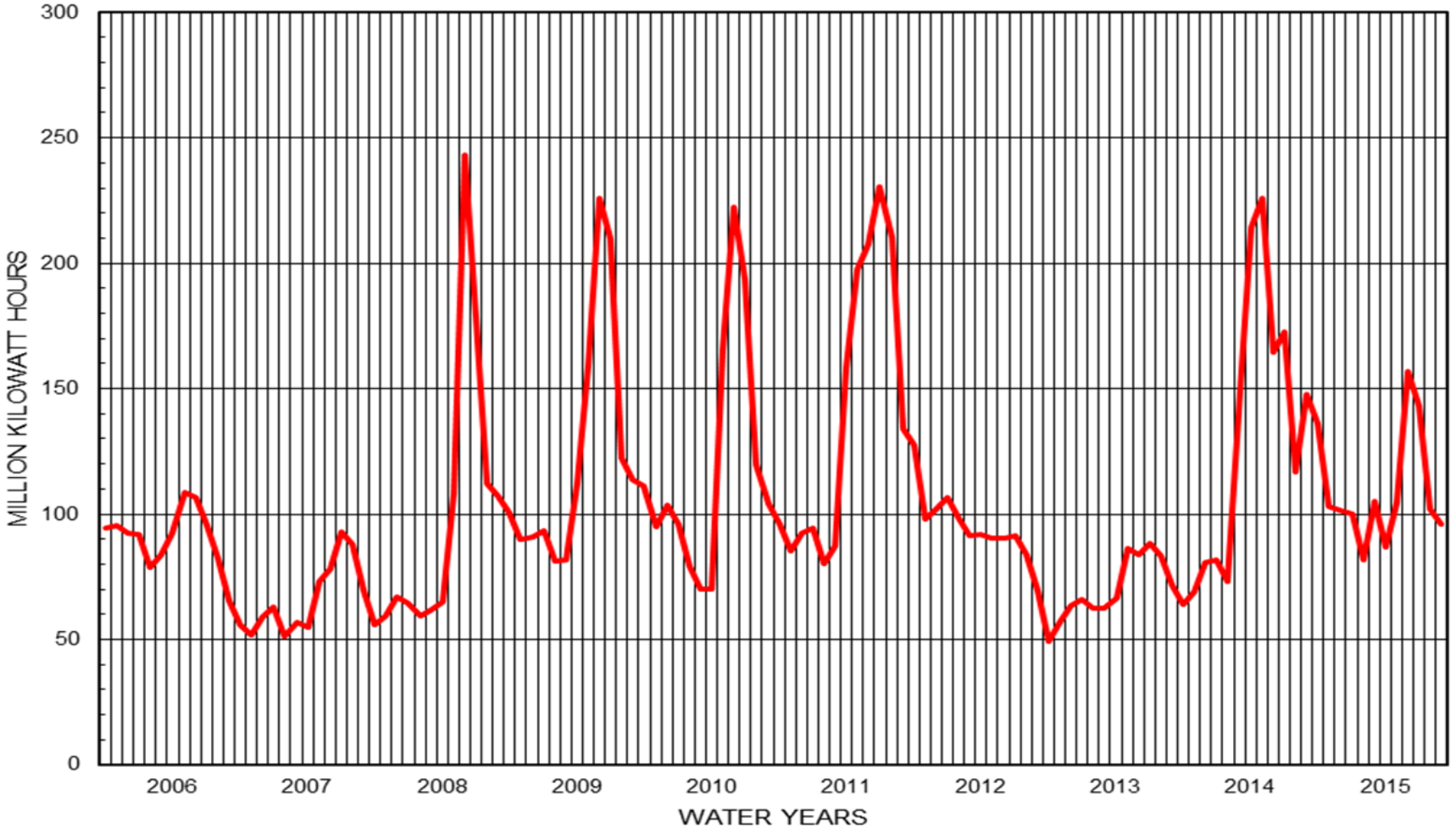


FIGURE CEG3

ANNUAL GENERATION AT COE PLANTS

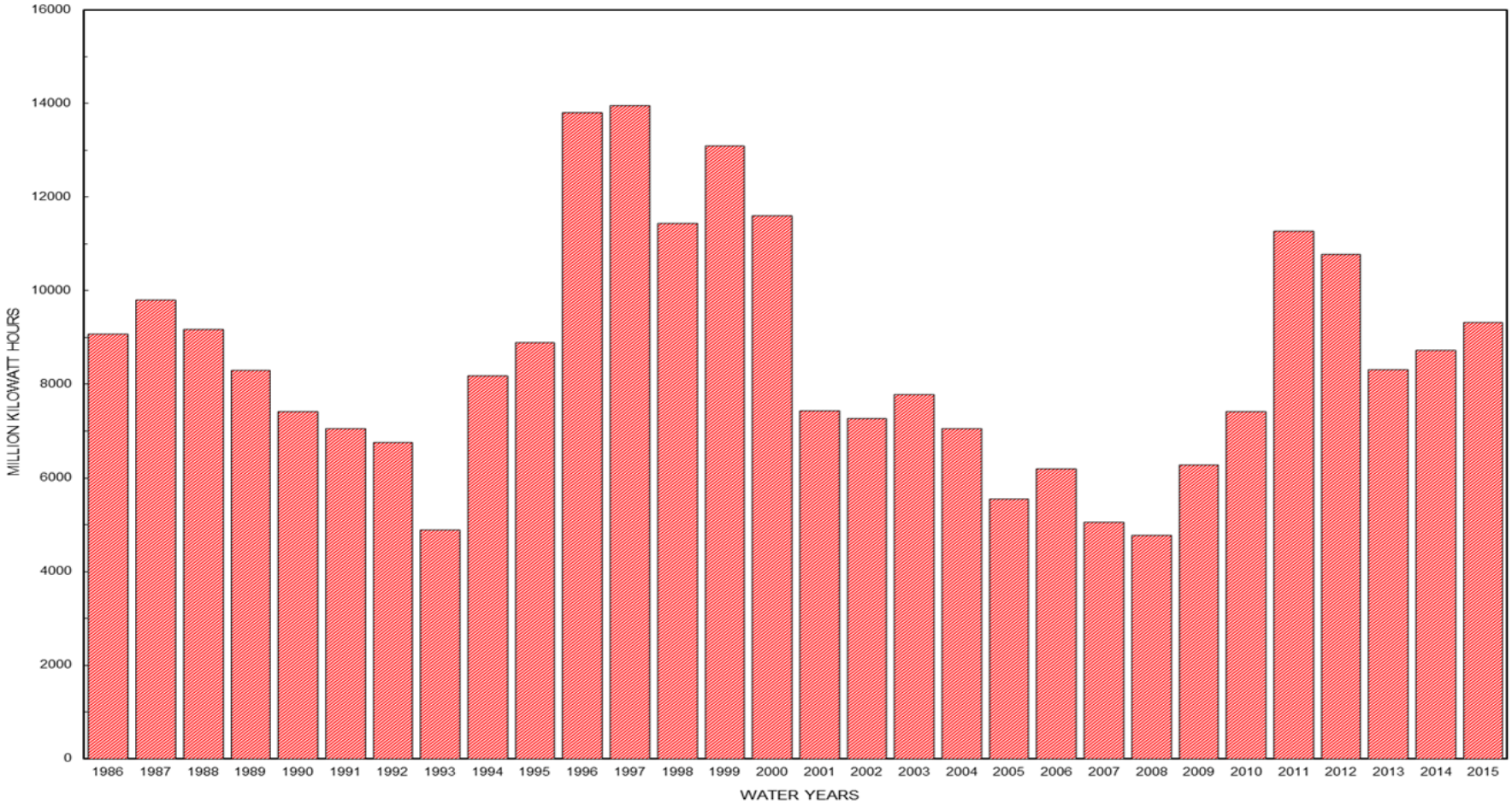


FIGURE CEG4

MONTHLY GENERATION AT COE PLANTS

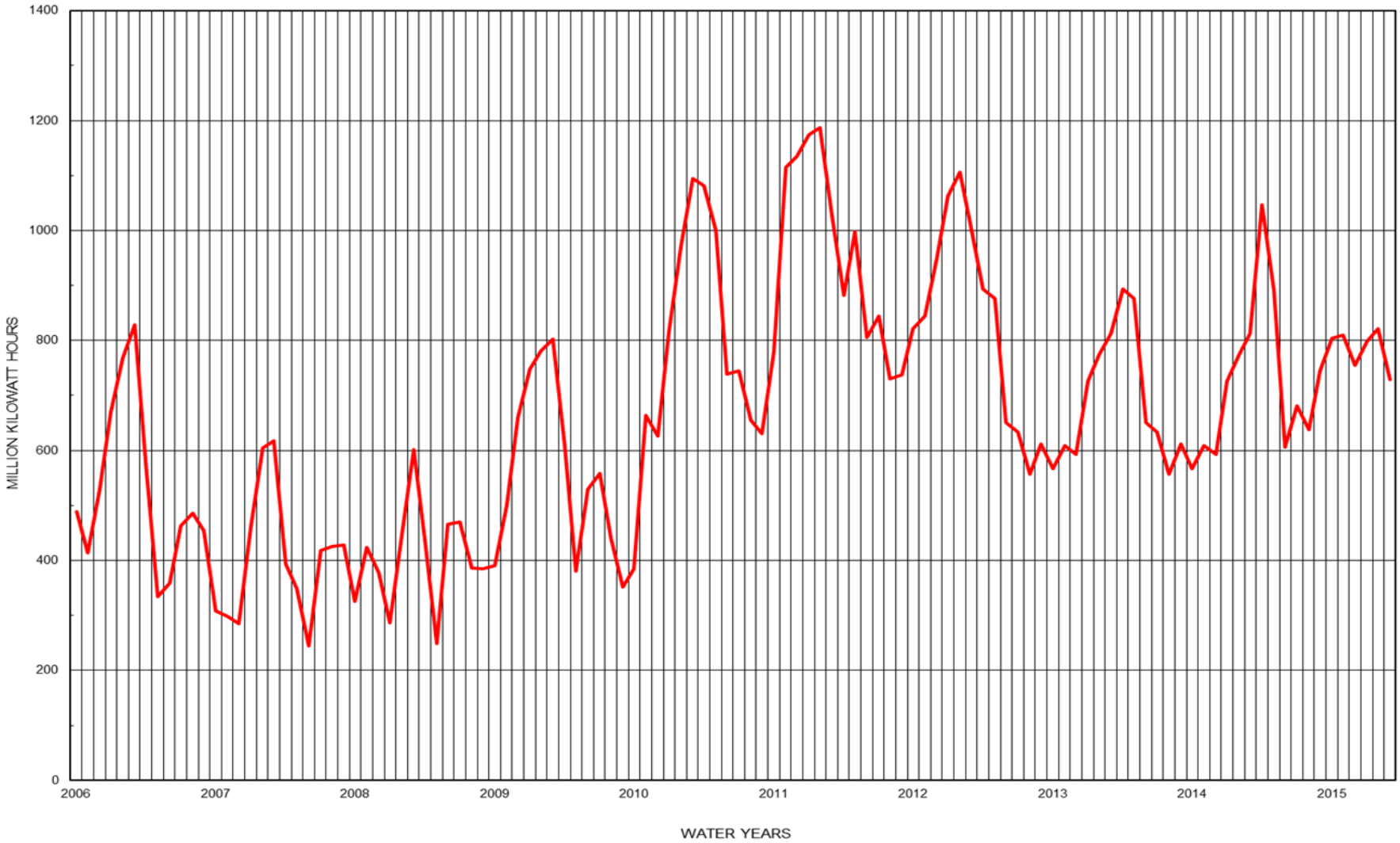


FIGURE CEG5

ANNUAL GENERATION - USBR & COE PLANTS

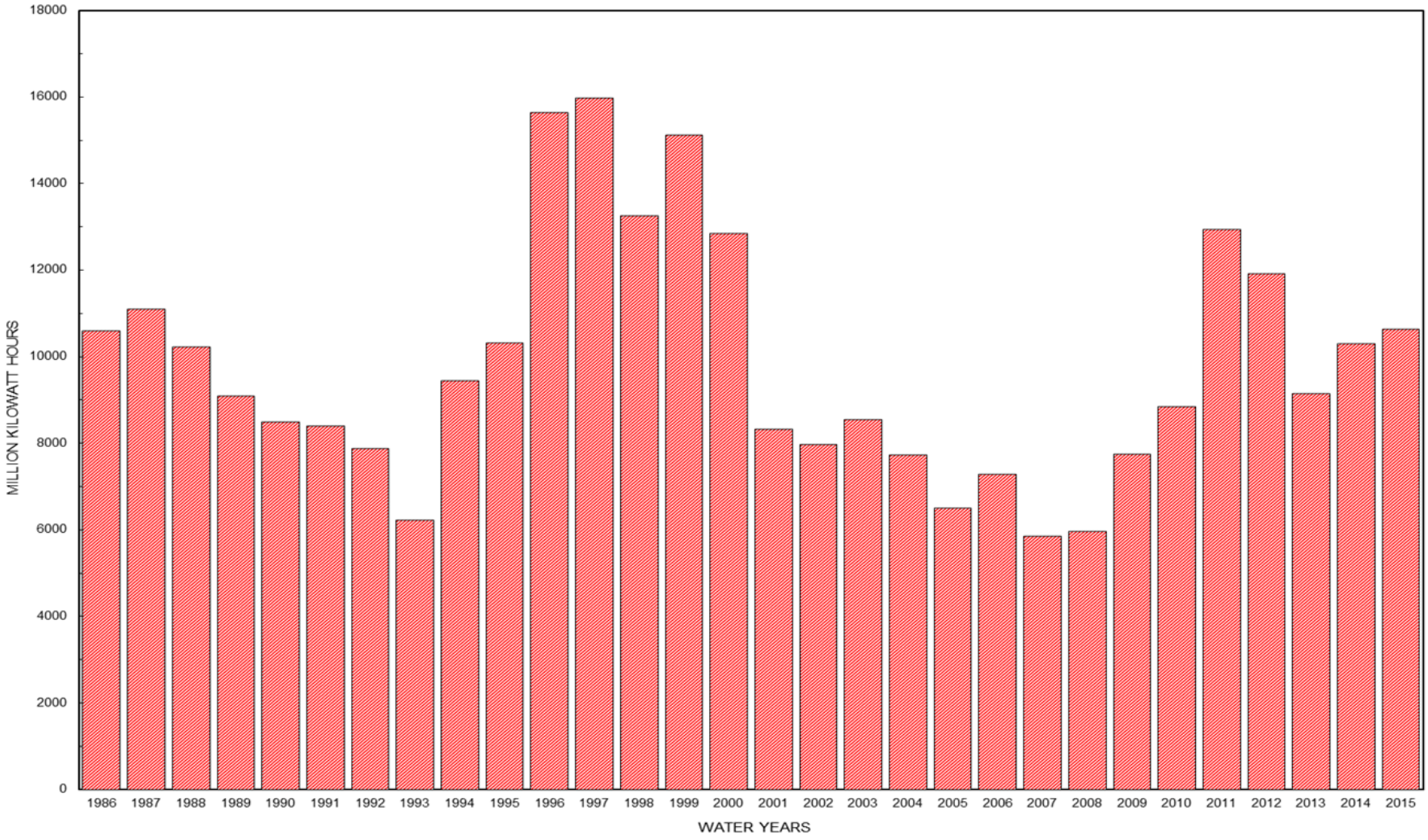
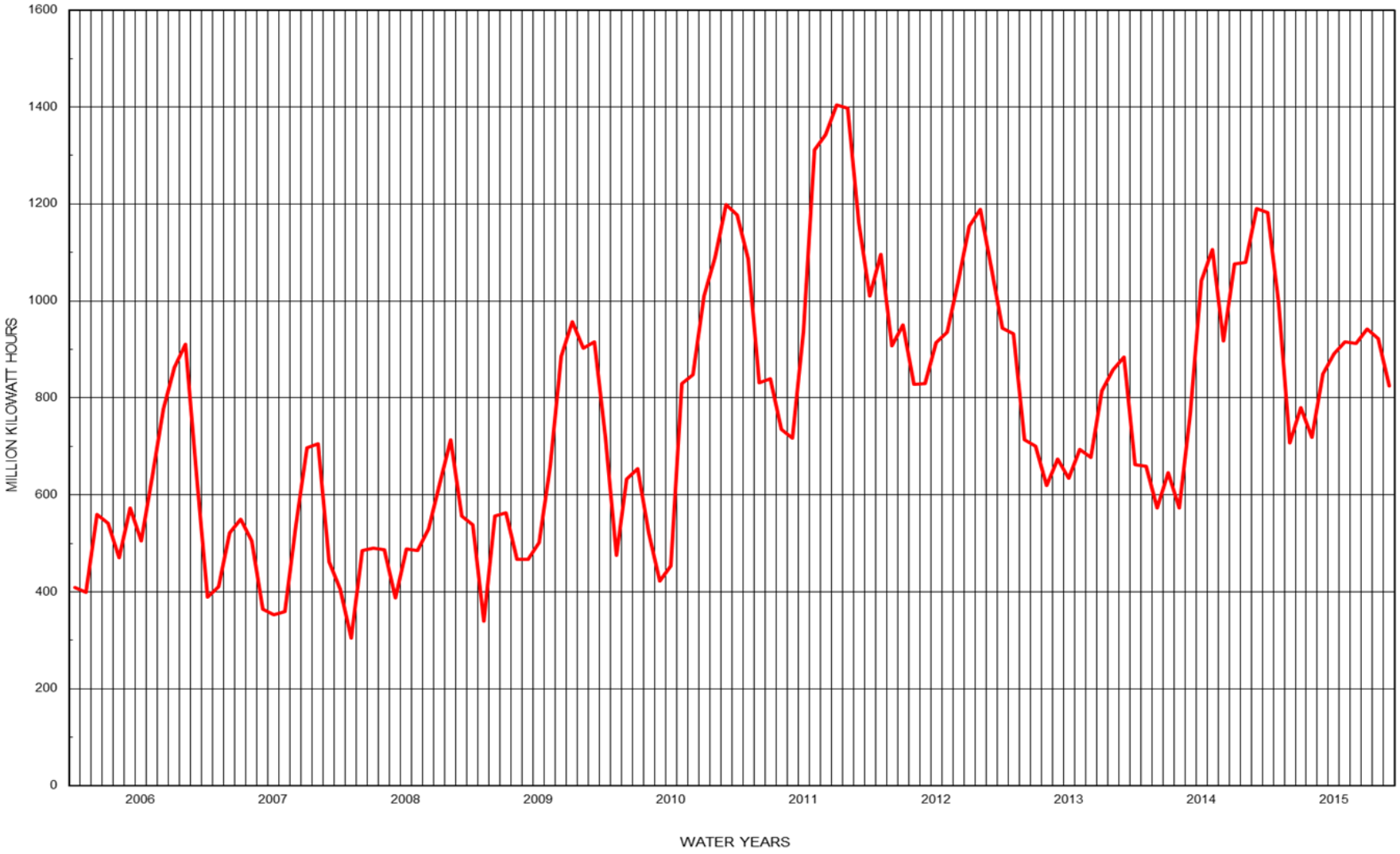


FIGURE CEG6

MONTHLY GENERATION - USBR & COE PLANTS



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