

RECLAMATION

Managing Water in the West

February 4, 2011

Dear Customer:

Attached are the monthly water supply outlook and projected reservoir and river operating plans as prepared in February. Mountain snowpack conditions in the Bighorn Basin on February 1 are 100 percent of average. Based on current hydrologic and climatic conditions and the planned releases out of Boysen and Buffalo Bill Reservoirs, the April-July runoff into Bighorn Lake is estimated to be about 1,160,800 acre-feet (104% of average). If you have any questions or concerns, please feel free to call me at (406) 247-7318.

Tim H. Felchle
Reservoir and River Operations



U. S. Department of the Interior
Bureau of Reclamation
Montana Area Office
River and Reservoir Operations

YELLOWTAIL RESERVOIR OPERATIONS
 Water Supply Forecasts and Reservoir Operations
 February 1, 2011

Present Elevations & Storages:

<u>Reservoir</u>	<u>Elevation</u>	<u>Storage</u>	<u>Percent of Normal</u>
Boysen	4717.70	608,893	110
Buffalo Bill	5366.88	446,081	107
Bighorn Lake	3621.65	841,616	102

Actual Inflows (1,000 Acre-Feet):

<u>Month</u>	<u>Inflow</u>	<u>Percent of Normal</u>
January	134.4	101
February	120.8	89
March	137.7	81
April	121.4	74
May	340.9	138
June	761.3	184
July	280.8	97
August	122.7	77
September	119.6	70
<i>April-July, 2010</i>	<i>1,504.4</i>	<i>135</i>
<i>WY-2010 Total</i>	<i>2,573.5</i>	<i>109</i>
October	122.2	67
November	122.6	80
December	122.7	89
January	121.9	91

Actual Gains Between Boysen and Buffalo Bill to Yellowtail (1,000 Acre-Feet):

<u>Month</u>	<u>Gains</u>	<u>Percent of Normal</u>
January	56.9	123
February	53.8	101
March	66.0	89
April	28.3	81
May	47.5	79
June	228.3	215
July	-50.8	---
August	-71.7	---
September	-9.7	---
<i>April-July, 2010</i>	<i>254.2</i>	<i>163</i>
<i>WY-2010 Total</i>	<i>513.9</i>	<i>107</i>
October	28.7	40
November	54.2	89
December	52.1	121
January	50.9	110

February 1 Runoff Forecast (April-July Inflows - 1,000 Acre-Feet):

<u>Agency</u>	<u>Inflows</u>	<u>Percent of Normal</u>
USBR	1,160.8	104

Snowpack Conditions:

S N O W - P R E C I P I T A T I O N U P D A T E
 Based on Mountain Data from NRCS SNOTEL Sites
 As of TUESDAY: FEBRUARY 1 , 2011

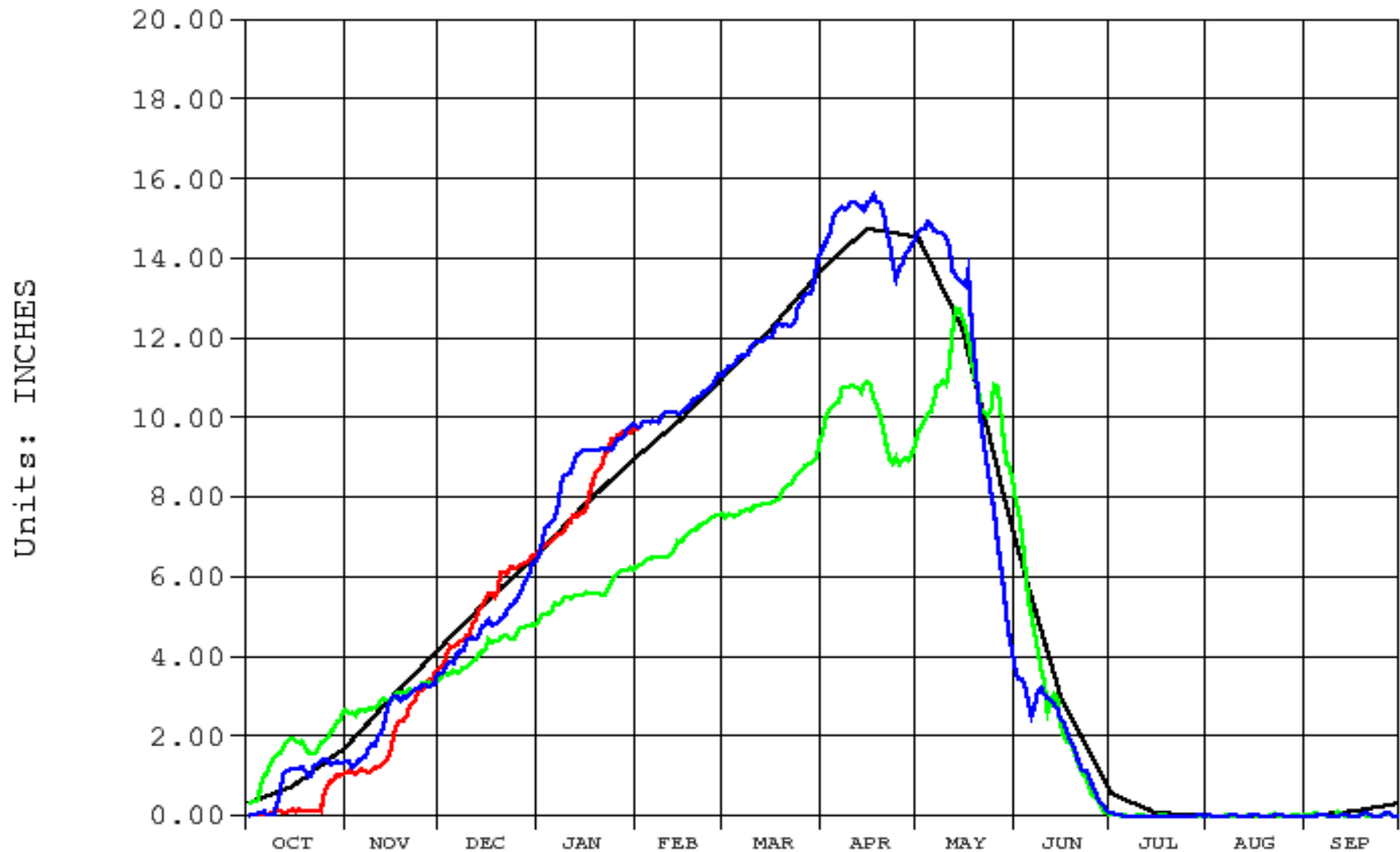
BASIN Data Site Name	ELEV. (Ft)	SNOW WATER EQUIVALENT			TOTAL PRECIPITATION		
		Current	Average	Avg %	Current	Average	Avg %

UPPER YELLOWSTONE RIVER BASIN							
BEARTOOTH LAKE	9360	17.3	16.2	107	16.9	14.0	121
BOX CANYON	6670	8.5	6.7	127	10.3	8.4	123
BRACKETT CREEK	7320	15.9	13.3	120	19.9	17.1	116

BURNT MTN	5880	4.1	4.0	103	6.7	9.5	71
CANYON	7870	11.0	8.9	124	12.4	10.8	115
COLE CREEK	7850	7.1	9.8	72	6.0	10.4	58
EAST BOULDER MINE	6335	3.7	-M	*	8.6	-M	*
EVENING STAR	9200	22.5	19.7	114	24.9	17.6	141
FISHER CREEK	9100	26.5	23.8	111	25.6	24.6	104
MONUMENT PEAK	8850	17.4	14.2	123	18.7	14.6	128
NORTHEAST ENTRANCE	7350	8.8	7.7	114	10.7	8.9	120
PARKER PEAK	9400	19.6	14.8	132	18.1	11.1	163
PLACER BASIN	8830	13.5	11.7	115	14.5	12.6	115
PORCUPINE	6500	5.5	4.5	122	9.2	7.8	118
SACAJAWEA	6550	10.8	8.9	121	18.8	15.4	122
SHOWER FALLS	8100	14.9	14.0	106	17.5	15.6	112
S FORK SHIELDS	8100	12.0	10.7	112	17.3	12.9	134
SYLVAN LAKE	8420	16.1	15.2	106	19.4	14.8	131
SYLVAN ROAD	7120	10.8	8.8	123	14.3	13.3	108
THUMB DIVIDE	7980	13.9	11.8	118	14.0	12.7	110
TWO OCEAN PLATEAU	9240	23.0	19.0	121	19.2	18.5	104
WHITE MILL	8700	18.3	16.1	114	19.1	18.3	104
WOLVERINE	7650	11.4	8.6	133	10.4	9.2	113
YOUNTS PEAK	8350	11.8	12.0	98	10.5	11.4	92
Basin wide percent of average				114			115
WIND RIVER BASIN (WYOMING)							
BURROUGHS CREEK	8750	10.1	10.1	100	10.6	11.3	94
CASTLE CREEK	8400	4.3	-M	*	5.0	-M	*
COLD SPRINGS	9630	5.8	6.0	97	5.7	7.1	80
DEER PARK	9700	14.1	11.7	121	15.3	14.5	106
HOBBS PARK	10100	9.5	9.8	97	8.6	8.2	105
KIRWIN	9550	7.8	7.7	101	8.6	7.6	113
LITTLE WARM	9370	8.1	7.8	104	8.5	9.1	93
OWL CREEK	8975	3.2	3.4	94	3.3	3.7	89
SOUTH PASS	9040	11.6	11.4	102	10.2	12.2	84
ST. LAWRENCE ALT	8620	3.7	4.8	77	4.5	5.7	79
TOGWOTEE PASS	9580	20.0	16.9	118	21.2	16.8	126
TOWNSEND CREEK	8700	5.5	5.6	98	7.4	7.3	101
YOUNTS PEAK	8350	11.8	12.0	98	10.5	11.4	92
Basin wide percent of average				104			100
SHOSHONE RIVER BASIN (WYOMING)							
BLACKWATER	9780	17.9	16.6	108	17.4	14.2	123
EVENING STAR	9200	22.5	19.7	114	24.9	17.6	141
MARQUETTE	8760	2.0	5.9	34	4.6	6.2	74
SYLVAN LAKE	8420	16.1	15.2	106	19.4	14.8	131
SYLVAN ROAD	7120	10.8	8.8	123	14.3	13.3	108
YOUNTS PEAK	8350	11.8	12.0	98	10.5	11.4	92
Basin wide percent of average				104			118
BIGHORN RIVER BASIN (WYOMING)							
BALD MTN.	9380	16.0	13.5	119	13.4	11.8	114
BEAR TRAP MEADOW	8200	5.5	3.5	157	5.9	5.5	107
BLACKWATER	9780	17.9	16.6	108	17.4	14.2	123
BONE SPRINGS DIV	9350	12.9	10.6	122	11.1	9.6	116
EVENING STAR	9200	22.5	19.7	114	24.9	17.6	141
GRAVE SPRINGS	8550	5.1	5.7	89	5.4	6.4	84
KIRWIN	9550	7.8	7.7	101	8.6	7.6	113
MARQUETTE	8760	2.0	5.9	34	4.6	6.2	74
MIDDLE POWDER	7760	6.4	7.2	89	4.3	8.3	52
OWL CREEK	8975	3.2	3.4	94	3.3	3.7	89
POWDER RIVER PASS	9480	10.0	7.2	139	11.7	8.3	141
SHELL CREEK	9580	11.7	9.9	118	10.5	9.3	113
SYLVAN LAKE	8420	16.1	15.2	106	19.4	14.8	131
SYLVAN ROAD	7120	10.8	8.8	123	14.3	13.3	108
TIMBER CREEK	7950	2.7	3.6	75	3.2	4.5	71
YOUNTS PEAK	8350	11.8	12.0	98	10.5	11.4	92
Basin wide percent of average				108			110

Archive Data From 1-OCT Through 30-SEP

Plotted 02/03/2011 08:15



BHR Bighorn Lake (Yellowtail), Bighorn River near Fort Smith, MT

SE_AVG Snow Water Equivalent Average (inches)

2011

SE Snow Water Equivalent (inches)

2011 2010 2009

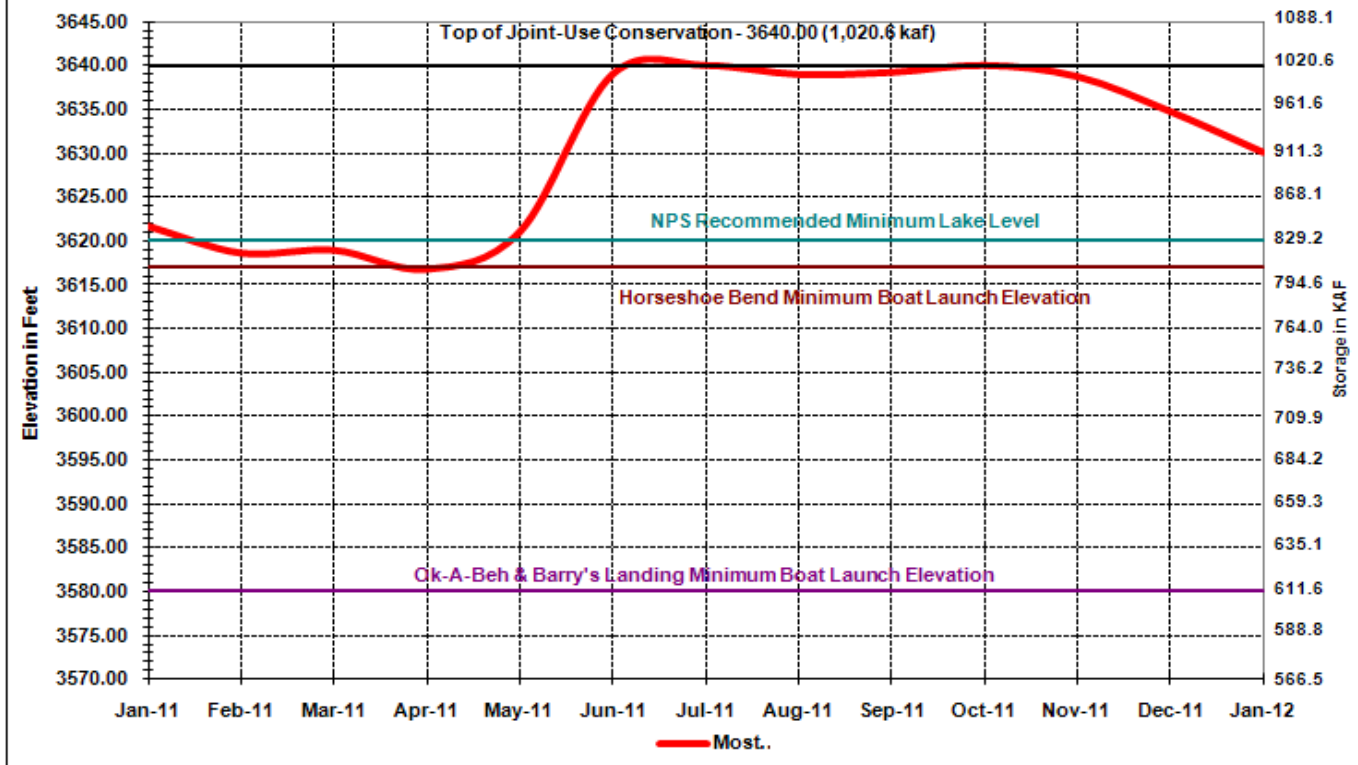
BHXAOP V1.12 Run: 04-Feb-2011 13:14
 Based on Most Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

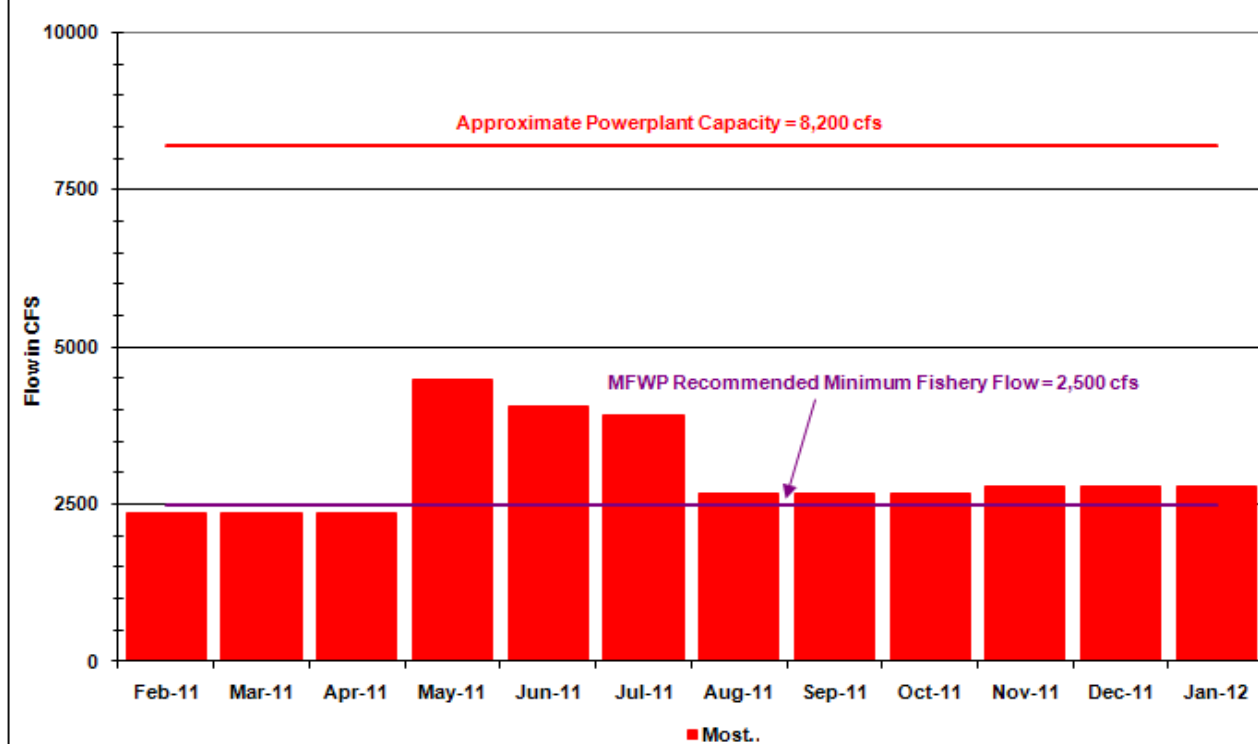
Bighorn Reservoir		Initial Cont 841.6 kaf Elev 3621.65 ft				Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
	2011	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Total
Boysen Release	kaf	44.4	56.2	55.0	140.0	130.8	121.1	96.9	59.6	61.5	59.6	61.5	61.5	948.1
Boysen Release	cfs	799	914	924	2277	2198	1970	1576	1002	1000	1002	1000	1000	
Buffalo Bill Riv Flo	kaf	19.7	21.8	31.7	135.9	211.5	206.8	122.2	98.8	40.1	31.1	21.8	21.8	963.2
Buffalo Bill Riv Flo	cfs	355	355	533	2210	3554	3363	1987	1660	652	523	355	355	
Station Gain	kaf	40.9	65.8	35.4	50.6	93.5	-51.5	-44.8	18.3	68.8	54.7	37.3	36.3	405.3
Monthly Inflow	kaf	105.0	143.8	122.1	326.5	435.8	276.4	174.3	176.7	170.4	145.4	120.6	119.6	2316.6
Monthly Inflow	cfs	1891	2339	2052	5310	7324	4495	2835	2970	2771	2444	1961	1945	
Turbine Release	kaf	127.7	141.4	137.4	295.8	264.3	264.0	187.1	173.9	160.4	161.1	166.6	166.5	2246.2
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	127.7	141.4	137.4	295.8	264.3	264.0	187.1	173.9	160.4	161.1	166.6	166.5	2246.2
Total Release	cfs	2299	2300	2309	4811	4442	4294	3043	2922	2609	2707	2709	2708	
Spring Flow	kaf	3.9	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	50.8
Irrigation Reqmnt	kaf	0.0	0.0	0.6	24.6	26.8	27.7	26.8	18.8	0.0	0.0	0.0	0.0	125.3
Afterbay Rels	kaf	131.6	145.7	141.6	300.1	268.5	268.3	191.4	178.1	164.7	165.3	170.9	170.8	2297.0
Afterbay Rels	cfs	2370	2370	2380	4881	4512	4363	3113	2993	2679	2778	2779	2778	
River Release	kaf	131.6	145.7	141.0	275.5	241.7	240.6	164.6	159.3	164.7	165.3	170.9	170.8	2171.7
River Release	cfs	2370	2370	2370	4481	4062	3913	2677	2677	2679	2778	2779	2778	
Min Release	kaf	131.6	145.7	141.0	153.7	148.8	153.7	153.7	148.8	153.7	148.8	153.7	145.7	1778.9
End-Month Targets	kaf			814.8			1020.6			1020.6				
End-Month Content	kaf	818.9	821.3	806.0	836.7	1008.2	1020.6	1007.8	1010.6	1020.6	1004.9	958.9	912.0	
End-Month Elevation	ft	3618.57	3618.91	3616.72	3621.00	3639.00	3640.00	3638.97	3639.20	3640.00	3638.73	3634.75	3630.07	
Net Change Content	kaf	-22.7	2.4	-15.3	30.7	171.5	12.4	-12.8	2.8	10.0	-15.7	-46.0	-46.9	70.4
Yellowtail Power	2011	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Total
Turbine Release	kaf	127.7	141.4	137.4	295.8	264.3	264.0	187.1	173.9	160.4	161.1	166.6	166.5	2246.2
Generation	gwh	48.368	53.351	51.714	111.660	103.457	106.456	75.442	70.011	64.704	64.929	66.500	65.460	882.052
End-Month Power Cap	mw	261.2	261.5	259.4	263.6	282.3	283.4	282.2	282.5	283.4	282.0	277.6	272.6	
% Max Gen		25	25	25	52	50	50	35	34	30	31	31	31	
Ave kwh/af		379	377	376	377	391	403	403	403	403	403	399	393	393
Upstream Generation	gwh	8.415	10.496	12.107	34.550	33.734	34.252	32.064	25.848	15.554	13.749	11.212	11.133	243.114
Total Generation	gwh	56.783	63.847	63.821	146.210	137.191	140.708	107.506	95.859	80.258	78.678	77.712	76.593	1125.166

BIGHORN LAKE

BIGHORN LAKE ELEVATION



BIGHORN RIVER FLOW BELOW AFTERBAY



WATER YEAR 2011

Supplemental Information

BHXAOP V1.12 Run: 04-Feb-2011 13:15
 Based on Minimum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 841.6 kaf Elev 3621.65 ft					Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
	2011	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan		
Boysen Release	kaf	44.3	56.2	47.6	67.6	69.9	76.9	69.2	59.5	46.1	41.7	43.0	43.1	665.1	
Boysen Release	cfs	798	914	800	1099	1175	1251	1125	1000	750	701	699	701		
Buffalo Bill Riv Flo	kaf	19.7	21.8	31.7	118.2	123.0	171.5	104.3	82.5	42.6	25.7	21.8	21.8	784.6	
Buffalo Bill Riv Flo	cfs	355	355	533	1922	2067	2789	1696	1386	693	432	355	355		
Station Gain	kaf	35.5	60.2	21.4	21.6	16.5	-60.2	-41.9	6.5	50.9	50.6	34.6	33.6	229.3	
Monthly Inflow	kaf	99.5	138.2	100.7	207.4	209.4	188.2	131.6	148.5	139.6	118.0	99.4	98.5	1679.0	
Monthly Inflow	cfs	1792	2248	1692	3373	3519	3061	2140	2496	2270	1983	1617	1602		
Turbine Release	kaf	127.7	118.7	115.4	143.3	141.6	146.4	145.5	133.6	118.7	144.5	149.3	149.3	1634.0	
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	127.7	118.7	115.4	143.3	141.6	146.4	145.5	133.6	118.7	144.5	149.3	149.3	1634.0	
Total Release	cfs	2299	1930	1939	2331	2380	2381	2366	2245	1930	2428	2428	2428		
Spring Flow	kaf	3.9	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	50.8	
Irrigation Reqmnt	kaf	0.0	0.0	0.6	24.6	26.8	27.7	26.8	18.8	0.0	0.0	0.0	0.0	125.3	
Afterbay Rels	kaf	131.6	123.0	119.6	147.6	145.8	150.7	149.8	137.8	123.0	148.7	153.6	153.6	1684.8	
Afterbay Rels	cfs	2370	2000	2010	2400	2450	2451	2436	2316	2000	2499	2498	2498		
River Release	kaf	131.6	123.0	119.0	123.0	119.0	123.0	123.0	119.0	123.0	148.7	153.6	153.6	1559.5	
River Release	cfs	2370	2000	2000	2000	2000	2000	2000	2000	2000	2499	2498	2498		
Min Release	kaf	131.6	123.0	119.0	123.0	119.0	123.0	123.0	119.0	123.0	119.0	123.0	123.0	1468.6	
End-Month Targets	kaf		834.8				1020.6			1020.6					
End-Month Content	kaf	813.4	832.9	818.2	882.3	950.1	991.9	978.0	992.9	1013.8	987.3	937.4	886.6		
End-Month Elevation	ft	3617.79	3620.49	3618.47	3626.70	3633.93	3637.65	3636.46	3637.73	3639.46	3637.26	3632.70	3627.21		
Net Change Content	kaf	-28.2	19.5	-14.7	64.1	67.8	41.8	-13.9	14.9	20.9	-26.5	-49.9	-50.8	45.0	
Yellowtail Power	2011	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Total	
Turbine Release	kaf	127.7	118.7	115.4	143.3	141.6	146.4	145.5	133.6	118.7	144.5	149.3	149.3	1634.0	
Generation	gwh	48.318	44.838	43.631	54.682	55.310	58.233	58.134	53.388	47.701	58.019	59.221	58.234	639.709	
End-Month Power Cap	mw	260.4	263.1	261.1	269.3	276.7	280.8	279.4	280.8	282.8	280.3	275.4	269.8		
% Max Gen		25	21	21	26	27	27	27	26	22	28	28	27		
Ave kwh/af		378	378	378	382	391	398	400	400	402	402	397	390	391	
Upstream Generation	gwh	8.397	10.463	11.421	28.443	28.422	30.266	25.575	21.679	14.601	10.525	9.499	9.465	208.756	
Total Generation	gwh	56.715	55.301	55.052	83.125	83.732	88.499	83.709	75.067	62.302	68.544	68.720	67.699	848.465	

BHXAOP V1.12 Run: 04-Feb-2011 13:20
 Based on Maximum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont Elev 841.6 kaf 3621.65 ft					Maximum Cont Elev 1278.9 kaf 3657.00 ft				Minimum Cont Elev 469.9 kaf 3547.00 ft				Total
	2011	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan		
Boysen Release	kaf	44.4	56.2	83.5	194.1	221.7	160.3	114.5	73.9	64.1	59.5	61.5	61.5	1195.2	
Boysen Release	cfs	799	914	1403	3157	3726	2607	1862	1242	1042	1000	1000	1000		
Buffalo Bill Riv Flo	kaf	19.7	21.8	31.7	190.9	252.4	257.1	147.4	100.2	41.7	32.7	21.8	21.8	1139.2	
Buffalo Bill Riv Flo	cfs	355	355	533	3105	4242	4181	2397	1684	678	550	355	355		
Station Gain	kaf	45.8	73.1	41.5	92.3	185.9	-14.7	-34.6	31.7	75.8	58.8	41.9	42.5	640.0	
Monthly Inflow	kaf	109.9	151.1	156.7	477.3	660.0	402.7	227.3	205.8	181.6	151.0	125.2	125.8	2974.4	
Monthly Inflow	cfs	1979	2457	2633	7763	11092	6549	3697	3459	2953	2538	2036	2046		
Turbine Release	kaf	127.7	149.4	215.3	462.2	433.9	390.2	234.8	206.6	173.3	167.6	173.3	173.3	2907.6	
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	127.7	149.4	215.3	462.2	433.9	390.2	234.8	206.6	173.3	167.6	173.3	173.3	2907.6	
Total Release	cfs	2299	2430	3618	7517	7292	6346	3819	3472	2818	2817	2818	2818		
Spring Flow	kaf	3.9	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	50.8	
Irrigation Reqmnt	kaf	0.0	0.0	0.5	11.2	21.8	27.7	26.8	11.9	0.0	0.0	0.0	0.0	99.9	
Afterbay Rels	kaf	131.6	153.7	219.5	466.5	438.1	394.5	239.1	210.8	177.6	171.8	177.6	177.6	2958.4	
Afterbay Rels	cfs	2370	2500	3689	7587	7363	6416	3889	3543	2888	2887	2888	2888		
River Release	kaf	131.6	153.7	219.0	455.3	416.3	366.8	212.3	198.9	177.6	171.8	177.6	177.6	2858.5	
River Release	cfs	2370	2500	3680	7405	6996	5965	3453	3343	2888	2887	2888	2888		
Min Release	kaf	131.6	153.7	148.8	153.7	148.8	153.7	153.7	148.8	153.7	148.8	153.7	153.7	1802.7	
End-Month Targets	kaf		850.0				1020.6			1020.6					
End-Month Content	kaf	823.8	825.5	766.9	782.0	1008.1	1020.6	1013.1	1012.3	1020.6	1004.0	955.9	908.4		
End-Month Elevation	ft	3619.25	3619.49	3610.50	3613.01	3639.00	3640.00	3639.40	3639.33	3640.00	3638.66	3634.47	3629.68		
Net Change Content	kaf	-17.8	1.7	-58.6	15.1	226.1	12.5	-7.5	-0.8	8.3	-16.6	-48.1	-47.5	66.8	
Yellowtail Power	2011	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Total	
Turbine Release	kaf	127.7	149.4	215.3	462.2	433.9	390.2	234.8	206.6	173.3	167.6	173.3	173.3	2907.6	
Generation	gwh	48.412	56.467	80.486	171.296	168.252	157.343	94.753	83.266	69.926	67.540	69.131	68.059	1134.931	
End-Month Power Cap	mw	261.9	262.1	253.6	255.9	282.2	283.4	282.7	282.6	283.4	281.9	277.3	272.2		
% Max Gen		25	26	39	80	81	73	44	40	33	33	32	32		
Ave kwh/af		379	378	374	371	388	403	404	403	403	403	399	393	390	
Upstream Generation	gwh	8.448	10.536	14.553	34.715	33.832	35.243	33.633	27.378	16.244	14.231	11.257	11.195	251.265	
Total Generation	gwh	56.860	67.003	95.039	206.011	202.084	192.586	128.386	110.644	86.170	81.771	80.388	79.254	1386.196	