

RECLAMATION

Managing Water in the West

May 6, 2011

Dear Customer:

Attached are the monthly water supply outlook and projected reservoir and river operating plans as prepared in May. Mountain snowpack conditions in the Bighorn Basin on May 1 were 142 percent of average. Based on current hydrologic and climatic conditions and the planned releases out of Boysen and Buffalo Bill Reservoirs, the May-July runoff into Bighorn Lake is estimated to be about 1,660,000 acre-feet (181% 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
 May 1, 2011

Present Elevations & Storages:

<u>Reservoir</u>	<u>Elevation</u>	<u>Storage</u>	<u>Percent of Average</u>	<u>Percent Full</u>
Boysen	4714.02	550,767	105	74
Buffalo Bill	5349.63	333,255	85	52
Bighorn Lake	3615.17	795,716	102	74

Actual Inflows (1,000 Acre-Feet):

<u>Month</u>	<u>Inflow</u>	<u>Percent of Average</u>
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	70
November	122.6	84
December	122.7	96
January	121.8	96
February	111.9	86
March	167.4	101
April	245.8	153

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

<u>Month</u>	<u>Gains</u>	<u>Percent of Average</u>
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	47.9	90
March	95.6	128
April	47.7	137

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

<u>Agency</u>	<u>Inflows</u>	<u>Percent of Average</u>
USBR	1,660.0	181

Snowpack Conditions: (See Next Page)

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 SUNDAY: MAY 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	33.3	25.9	129	31.9	23.5	136
BOX CANYON	6670	15.9	6.0	265	20.3	14.9	136
BRACKETT CREEK	7320	35.8	21.5	167	38.4	30.7	125
BURNT MTN	5880	3.9	1.0	390	14.7	20.2	73
CANYON	7870	21.7	11.3	192	23.3	17.7	132
COLE CREEK	7850	17.0	19.7	86	13.4	21.9	61
EAST BOULDER MINE	6335	5.6	-M	*	16.5	-M	*
EVENING STAR	9200	41.5	33.3	125	-M	29.9	*
FISHER CREEK	9100	51.4	37.8	136	-M	41.9	*
MONUMENT PEAK	8850	32.6	23.2	141	34.3	24.8	138
NORTHEAST ENTRANCE	7350	17.2	7.1	242	19.6	14.8	132
PARKER PEAK	9400	38.3	24.5	156	-M	19.5	*
PLACER BASIN	8830	26.6	19.8	134	27.9	23.5	119
PORCUPINE	6500	10.6	3.6	294	17.8	14.9	119
SACAJAWEA	6550	24.4	12.8	191	34.7	27.6	126
SHOWER FALLS	8100	33.2	26.9	123	35.9	30.5	118
S FORK SHIELDS	8100	24.8	19.6	127	34.5	25.6	135
SYLVAN LAKE	8420	33.2	23.8	139	36.6	24.7	148
SYLVAN ROAD	7120	18.2	8.1	225	27.0	20.5	132
THUMB DIVIDE	7980	29.4	14.9	197	26.9	22.0	122
TWO OCEAN PLATEAU	9240	-M	31.8	*	-M	32.1	*
WHITE MILL	8700	36.1	26.4	137	35.7	31.2	114
WOLVERINE	7650	17.4	7.2	242	18.5	15.2	122
YOUNTS PEAK	8350	23.7	18.1	131	20.9	18.8	111

Basin wide percent of average				149			

WIND RIVER BASIN (WYOMING)							
BURROUGHS CREEK	8750	20.7	13.6	152	21.6	19.3	112
CASTLE CREEK	8400	7.2	-M	*	10.4	-M	*
COLD SPRINGS	9630	9.6	4.8	200	11.5	13.9	83
DEER PARK	9700	22.3	18.6	120	26.1	27.0	97
HOBBS PARK	10100	19.1	18.0	106	17.0	16.9	101
KIRWIN	9550	16.9	13.0	130	17.4	14.2	123
LITTLE WARM	9370	15.9	11.1	143	16.4	16.8	98
OWL CREEK	8975	7.8	4.0	195	9.0	8.2	110
SOUTH PASS	9040	19.7	18.0	109	17.0	22.7	75
ST. LAWRENCE ALT	8620	3.7	6.1	61	9.7	12.1	80
TOGWOTEE PASS	9580	37.8	27.9	135	39.3	29.0	136
TOWNSEND CREEK	8700	9.4	9.1	103	13.6	15.5	88
YOUNTS PEAK	8350	23.7	18.1	131	20.9	18.8	111

Basin wide percent of average				127			

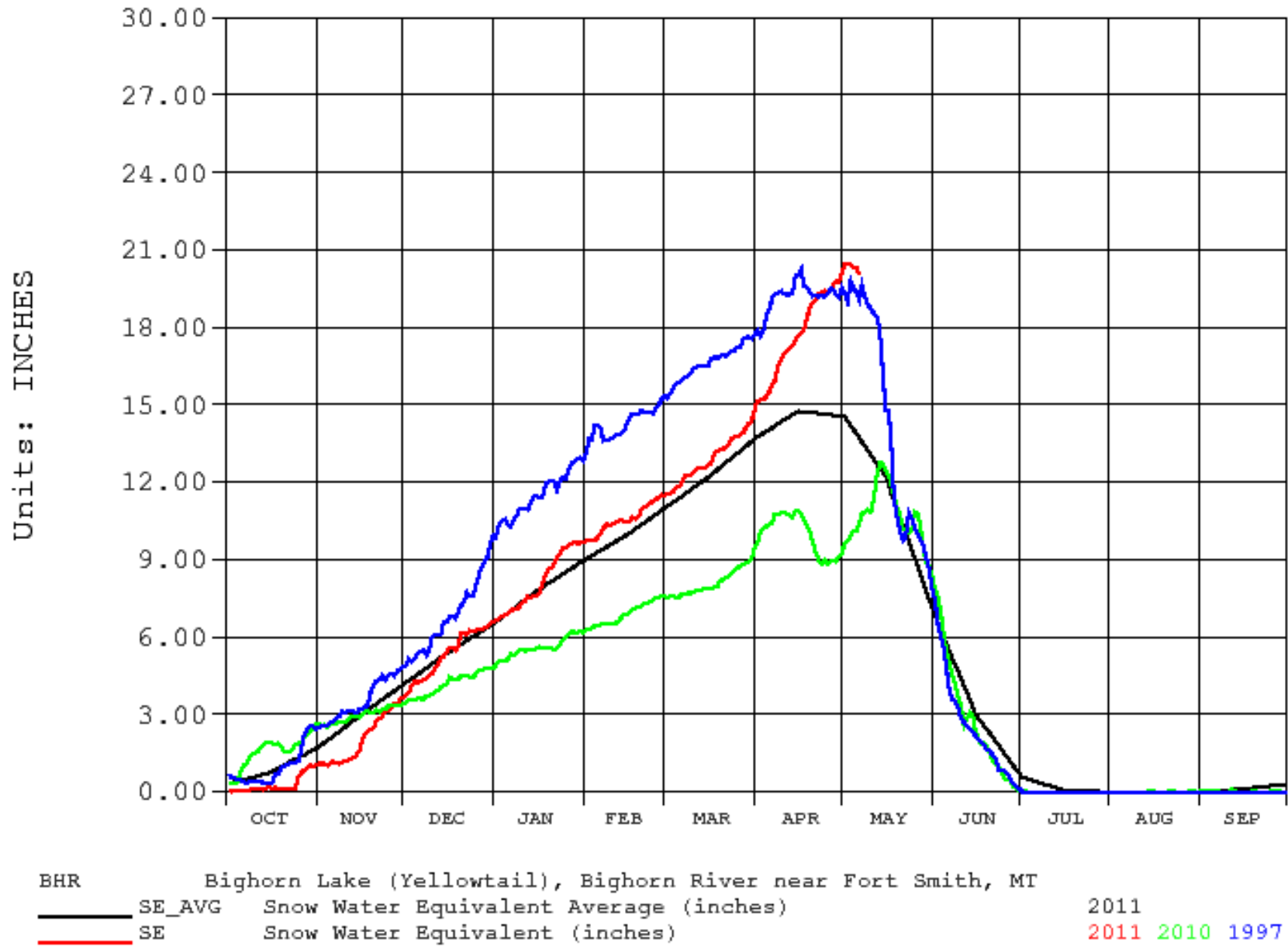
SHOSHONE RIVER BASIN (WYOMING)							
BLACKWATER	9780	36.7	28.8	127	34.6	24.7	140
EVENING STAR	9200	41.5	33.3	125	-M	29.9	*
MARQUETTE	8760	7.1	-M	*	10.1	13.7	74
SYLVAN LAKE	8420	33.2	23.8	139	36.6	24.7	148
SYLVAN ROAD	7120	18.2	8.1	225	27.0	20.5	132
YOUNTS PEAK	8350	23.7	18.1	131	20.9	18.8	111

Basin wide percent of average				137			

BIGHORN RIVER BASIN (WYOMING)							
BALD MTN.	9380	32.1	23.6	136	25.8	21.3	121
BEAR TRAP MEADOW	8200	11.4	2.5	456	12.4	10.9	114
BLACKWATER	9780	36.7	28.8	127	34.6	24.7	140
BONE SPRINGS DIV	9350	28.2	18.3	154	22.6	18.3	123
EVENING STAR	9200	41.5	33.3	125	-M	29.9	*
GRAVE SPRINGS	8550	12.3	11.1	111	12.7	13.1	97
KIRWIN	9550	16.9	13.0	130	17.4	14.2	123
MARQUETTE	8760	7.1	-M	*	10.1	13.7	74
MIDDLE POWDER	7760	14.8	14.3	103	14.3	15.8	91
OWL CREEK	8975	7.8	4.0	195	9.0	8.2	110
POWDER RIVER PASS	9480	20.7	10.7	193	23.9	15.8	151
SHELL CREEK	9580	24.4	16.8	145	21.8	16.8	130
SYLVAN LAKE	8420	33.2	23.8	139	36.6	24.7	148
SYLVAN ROAD	7120	18.2	8.1	225	27.0	20.5	132
TIMBER CREEK	7950	7.0	4.8	146	8.1	10.5	77
YOUNTS PEAK	8350	23.7	18.1	131	20.9	18.8	111

Basin wide percent of average				142			

Archive Data From 1-OCT Through 30-SEP
Plotted 05/06/2011 10:44



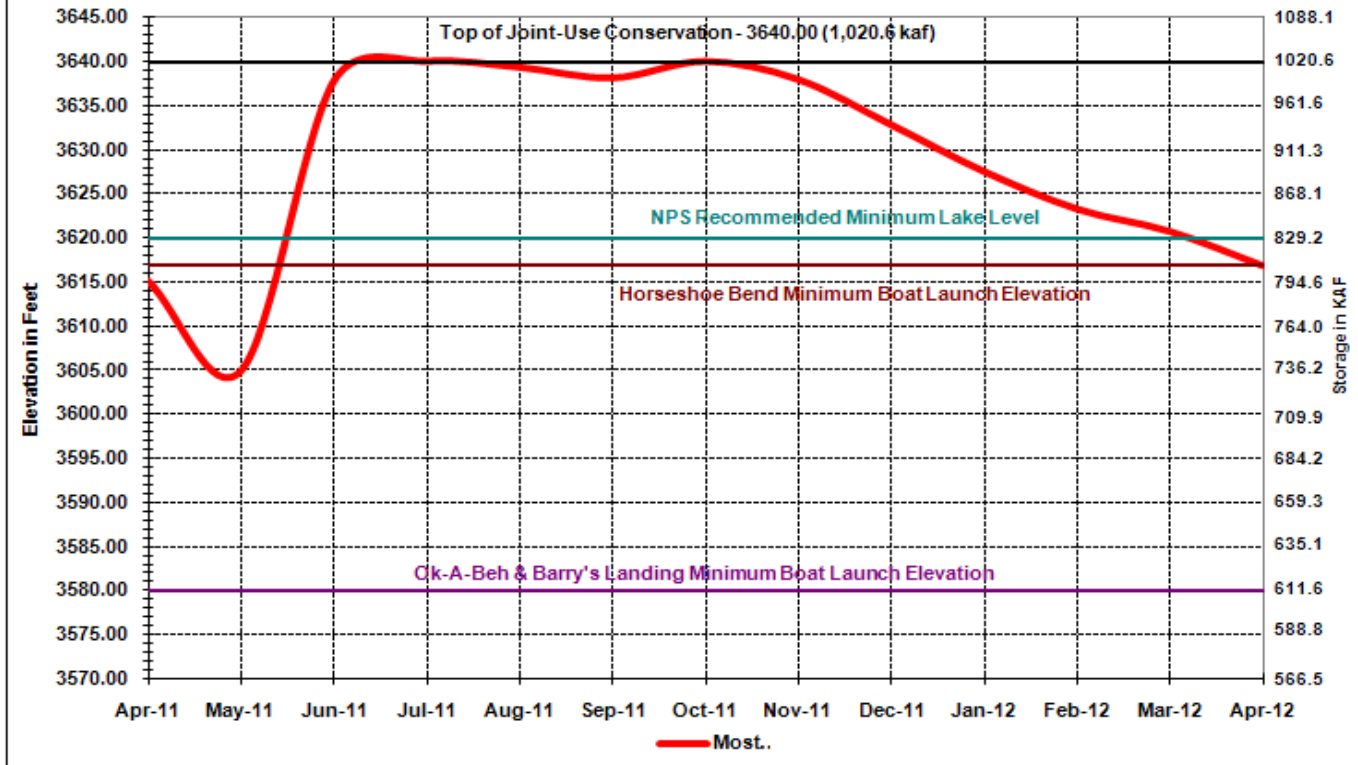
BHXAOP V1.12 Run: 06-May-2011 10:21
 Based on Most Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

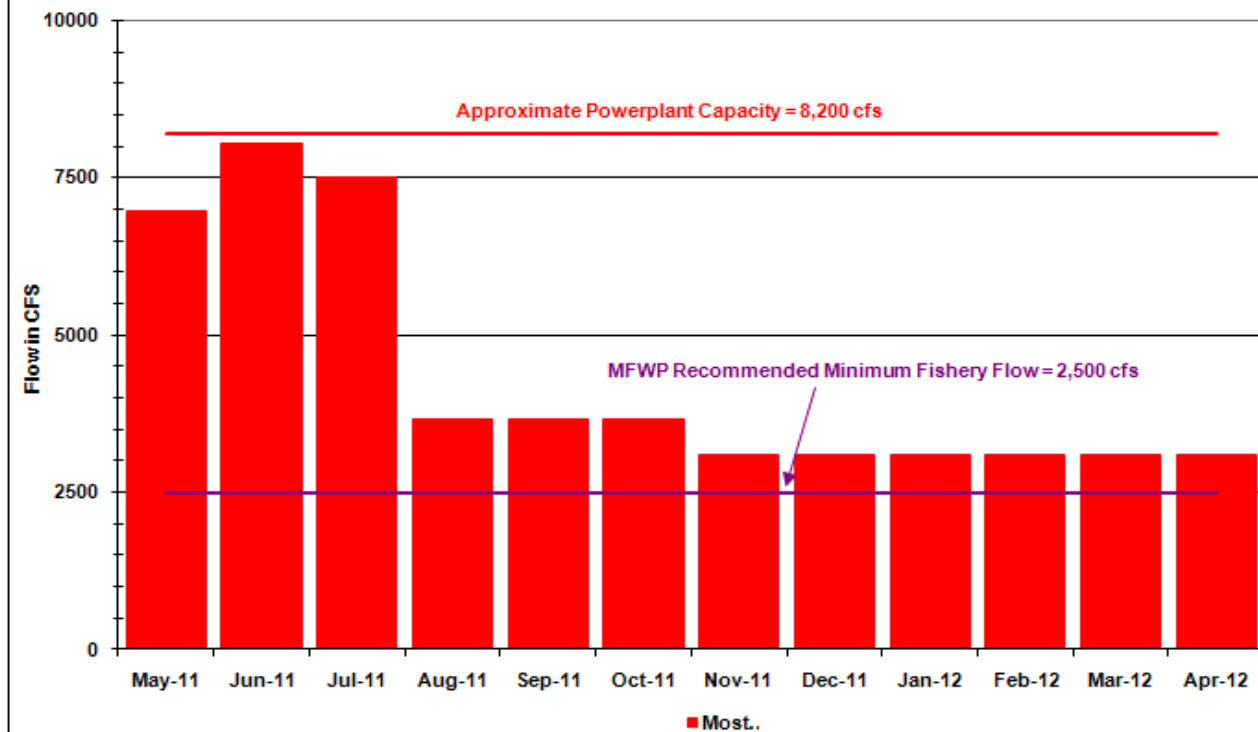
Bighorn Reservoir		Initial Cont 795.7 kaf Elev 3615.17 ft				Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
	2011	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Boysen Release	kaf	172.2	208.2	203.6	110.7	59.5	61.5	59.5	61.4	61.5	57.5	61.4	59.6	1176.6
Boysen Release	cfs	2801	3499	3311	1800	1000	1000	1000	999	1000	1000	999	1002	
Buffalo Bill Riv Flo	kaf	160.2	265.8	230.6	122.5	110.9	46.5	24.7	21.8	21.8	20.4	21.8	48.8	1095.8
Buffalo Bill Riv Flo	cfs	2605	4467	3750	1992	1864	756	415	355	355	355	355	820	
Station Gain	kaf	57.0	284.4	78.0	5.9	47.4	135.9	70.8	46.6	54.1	61.5	83.7	44.8	970.1
Monthly Inflow	kaf	389.4	758.4	512.2	239.1	217.8	243.9	155.0	129.8	137.4	139.4	166.9	153.2	3242.5
Monthly Inflow	cfs	6333	12745	8330	3889	3660	3967	2605	2111	2235	2423	2714	2575	
Turbine Release	kaf	448.8	501.2	485.1	247.6	232.4	220.8	180.4	186.5	186.5	174.4	186.5	180.9	3231.1
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	448.8	501.2	485.1	247.6	232.4	220.8	180.4	186.5	186.5	174.4	186.5	180.9	3231.1
Total Release	cfs	7299	8423	7889	4027	3906	3591	3032	3033	3033	3032	3033	3040	
Spring Flow	kaf	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	4.0	4.3	4.2	50.9
Irrigation Reqmnt	kaf	24.6	26.8	27.7	26.8	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.6	125.3
Afterbay Rels	kaf	453.1	505.4	489.4	251.9	236.6	225.1	184.6	190.8	190.8	178.4	190.8	185.1	3282.0
Afterbay Rels	cfs	7369	8494	7959	4097	3976	3661	3102	3103	3103	3101	3103	3111	
River Release	kaf	428.5	478.6	461.7	225.1	217.8	225.1	184.6	190.8	190.8	178.4	190.8	184.5	3156.7
River Release	cfs	6969	8043	7509	3661	3660	3661	3102	3103	3103	3101	3103	3101	
Min Release	kaf	153.7	148.8	153.7	153.7	148.8	153.7	148.8	153.7	153.7	143.8	153.7	148.8	1814.9
End-Month Targets	kaf			1020.6			1020.6					834.8		
End-Month Content	kaf	736.3	993.5	1020.6	1012.1	997.5	1020.6	995.2	938.5	889.4	854.4	834.8	807.1	
End-Month Elevation	ft	3605.01	3637.79	3640.00	3639.32	3638.12	3640.00	3637.93	3632.81	3627.53	3623.29	3620.75	3616.88	
Net Change Content	kaf	-59.4	257.2	27.1	-8.5	-14.6	23.1	-25.4	-56.7	-49.1	-35.0	-19.6	-27.7	11.4
Yellowtail Power	2011	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Turbine Release	kaf	448.8	501.2	485.1	247.6	232.4	220.8	180.4	186.5	186.5	174.4	186.5	180.9	3231.1
Generation	gwh	165.760	192.277	195.169	99.903	93.435	88.889	72.599	74.084	72.792	67.075	71.018	68.277	1261.278
End-Month Power Cap	mw	248.6	280.9	283.4	282.6	281.3	283.4	281.1	275.5	270.1	265.9	263.3	259.6	
% Max Gen		77	93	91	47	45	41	35	35	34	33	33	33	
Ave kwh/af		369	384	402	403	402	403	402	397	390	385	381	377	390
Upstream Generation	gwh	28.649	31.617	35.114	33.297	27.829	11.811	6.614	5.772	5.758	5.359	5.722	17.502	215.044
Total Generation	gwh	194.409	223.894	230.283	133.200	121.264	100.700	79.213	79.856	78.550	72.434	76.740	85.779	1476.322

BIGHORN LAKE

BIGHORN LAKE ELEVATION



BIGHORN RIVER FLOW BELOW AFTERBAY



WATER YEAR 2011

Supplemental Information

BHXAOP V1.12 Run: 06-May-2011 10:22
 Based on Minimum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 795.7 kaf Elev 3615.17 ft				Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
	2011	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Boysen Release	kaf	172.1	104.2	107.6	69.2	59.5	61.5	59.5	61.4	61.5	57.5	61.4	59.5	934.9
Boysen Release	cfs	2799	1751	1750	1125	1000	1000	1000	999	1000	1000	999	1000	
Buffalo Bill Riv Flo	kaf	160.1	193.8	202.7	114.2	89.8	44.7	23.6	21.8	21.8	20.4	21.8	31.7	946.4
Buffalo Bill Riv Flo	cfs	2604	3257	3297	1857	1509	727	397	355	355	355	355	533	
Station Gain	kaf	-44.2	276.5	31.2	5.2	42.7	96.3	60.2	44.1	45.7	54.1	73.8	32.7	718.3
Monthly Inflow	kaf	288.0	574.5	341.5	188.6	192.0	202.5	143.3	127.3	129.0	132.0	157.0	123.9	2599.6
Monthly Inflow	cfs	4684	9655	5554	3067	3227	3293	2408	2070	2098	2295	2553	2082	
Turbine Release	kaf	290.3	371.9	316.9	207.9	194.1	181.1	172.5	178.3	178.4	166.9	178.3	173.2	2609.8
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	290.3	371.9	316.9	207.9	194.1	181.1	172.5	178.3	178.4	166.9	178.3	173.2	2609.8
Total Release	cfs	4721	6250	5154	3381	3262	2945	2899	2900	2901	2902	2900	2911	
Spring Flow	kaf	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	4.0	4.3	4.2	50.9
Irrigation Reqmnt	kaf	24.6	26.8	27.7	26.8	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.6	125.3
Afterbay Rels	kaf	294.6	376.1	321.2	212.2	198.3	185.4	176.7	182.6	182.7	170.9	182.6	177.4	2660.7
Afterbay Rels	cfs	4791	6321	5224	3451	3333	3015	2970	2970	2971	2971	2970	2981	
River Release	kaf	270.0	349.3	293.5	185.4	179.5	185.4	176.7	182.6	182.7	170.9	182.6	176.8	2535.4
River Release	cfs	4391	5870	4773	3015	3017	3015	2970	2970	2971	2971	2970	2971	
Min Release	kaf	153.7	148.8	153.7	153.7	148.8	153.7	119.0	123.0	123.0	115.0	123.0	148.8	1664.2
End-Month Targets	kaf			1020.6			1020.6					834.8		
End-Month Content	kaf	793.4	996.0	1020.6	1001.3	999.2	1020.6	991.4	940.4	891.0	856.1	834.8	785.5	
End-Month Elevation	ft	3614.81	3638.00	3640.00	3638.44	3638.26	3640.00	3637.61	3633.00	3627.72	3623.51	3620.75	3613.57	
Net Change Content	kaf	-2.3	202.6	24.6	-19.3	-2.1	21.4	-29.2	-51.0	-49.4	-34.9	-21.3	-49.3	-10.2
Yellowtail Power	2011	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Turbine Release	kaf	290.3	371.9	316.9	207.9	194.1	181.1	172.5	178.3	178.4	166.9	178.3	173.2	2609.8
Generation	gwh	108.453	144.192	127.547	83.745	77.926	72.926	69.379	70.805	69.673	64.228	67.917	65.101	1021.892
End-Month Power Cap	mw	257.6	281.1	283.4	281.6	281.4	283.4	280.7	275.7	270.3	266.1	263.3	256.4	
% Max Gen		51	70	60	39	38	34	33	33	33	32	32	31	
Ave kwh/af		374	388	402	403	401	403	402	397	391	385	381	376	392
Upstream Generation	gwh	28.017	28.975	32.853	28.706	23.957	11.168	6.299	5.768	5.745	5.341	5.700	12.342	194.871
Total Generation	gwh	136.470	173.167	160.400	112.451	101.883	84.094	75.678	76.573	75.418	69.569	73.617	77.443	1216.763

BHXAOP V1.12 Run: 06-May-2011 10:22
 Based on Maximum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 795.7 kaf Elev 3615.17 ft				Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
	2011	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Boysen Release	kaf	172.2	333.3	278.4	117.8	81.4	61.5	59.5	61.5	61.5	57.6	61.5	74.3	1420.5
Boysen Release	cfs	2801	5601	4528	1916	1368	1000	1000	1000	1000	1001	1000	1249	
Buffalo Bill Riv Flo	kaf	160.2	310.2	336.2	134.1	113.5	48.4	26.0	21.8	21.8	20.4	21.8	76.4	1290.8
Buffalo Bill Riv Flo	cfs	2605	5213	5468	2181	1907	787	437	355	355	355	355	1284	
Station Gain	kaf	151.8	177.5	-26.8	23.4	36.4	159.2	81.4	53.6	62.2	70.7	96.3	51.5	937.2
Monthly Inflow	kaf	484.2	821.0	587.8	275.3	231.3	269.1	166.9	136.9	145.5	148.7	179.6	202.2	3648.5
Monthly Inflow	cfs	7875	13797	9560	4477	3887	4376	2805	2226	2366	2585	2921	3398	
Turbine Release	kaf	510.6	500.2	515.9	275.2	252.2	248.3	190.1	196.5	196.5	183.8	196.5	272.9	3538.7
Bypass/Spill/Waste	kaf	33.0	108.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	141.4
Total Release	kaf	543.6	608.6	515.9	275.2	252.2	248.3	190.1	196.5	196.5	183.8	196.5	272.9	3680.1
Total Release	cfs	8841	10228	8390	4476	4238	4038	3195	3196	3196	3195	3196	4586	
Spring Flow	kaf	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	4.0	4.3	4.2	50.9
Irrigation Reqmnt	kaf	11.2	21.8	27.7	26.8	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.5	99.9
Afterbay Rels	kaf	547.9	612.8	520.2	279.5	256.4	252.6	194.3	200.8	200.8	187.8	200.8	277.1	3731.0
Afterbay Rels	cfs	8911	10298	8460	4546	4309	4108	3265	3266	3266	3265	3266	4657	
River Release	kaf	536.7	591.0	492.5	252.7	244.5	252.6	194.3	200.8	200.8	187.8	200.8	276.6	3631.1
River Release	cfs	8729	9932	8010	4110	4109	4108	3265	3266	3266	3265	3266	4648	
Min Release	kaf	153.7	148.8	153.7	153.7	148.8	153.7	148.8	153.7	153.7	136.3	151.0	148.8	1804.7
End-Month Targets	kaf			1020.6			1020.6					834.8		
End-Month Content	kaf	736.3	948.7	1020.6	1020.7	999.8	1020.6	997.4	937.8	886.8	851.7	834.8	764.1	
End-Month Elevation	ft	3605.01	3633.80	3640.00	3640.01	3638.31	3640.00	3638.11	3632.74	3627.23	3622.95	3620.75	3610.02	
Net Change Content	kaf	-59.4	212.4	71.9	0.1	-20.9	20.8	-23.2	-59.6	-51.0	-35.1	-16.9	-70.7	-31.6
Yellowtail Power	2011	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Turbine Release	kaf	510.6	500.2	515.9	275.2	252.2	248.3	190.1	196.5	196.5	183.8	196.5	272.9	3538.7
Generation	gwh	188.573	190.326	206.106	111.186	101.568	99.995	76.529	78.076	76.652	70.623	74.789	102.149	1376.572
End-Month Power Cap	mw	248.6	276.5	283.4	283.4	281.5	283.4	281.3	275.4	269.8	265.5	263.3	253.2	
% Max Gen		88	92	96	52	49	47	37	36	36	35	35	49	
Ave kwh/af		369	380	400	404	403	403	403	397	390	384	381	374	389
Upstream Generation	gwh	29.020	31.996	35.238	33.954	29.734	12.328	6.981	5.769	5.765	5.369	5.740	25.145	227.039
Total Generation	gwh	217.593	222.322	241.344	145.140	131.302	112.323	83.510	83.845	82.417	75.992	80.529	127.294	1603.611