

RECLAMATION

Managing Water in the West

September 5, 2012

Dear Customer:

Attached is the monthly water supply outlook and projected operations for Yellowtail Dam and Powerplant. Streamflows into Bighorn Lake during August improved but continued to remain at only 65% of average. Based on the September 1 water supply forecast and the planned releases out of Boysen and Buffalo Bill Reservoirs, the September runoff into Bighorn Lake is expected to equal 132,800 acre-feet (78% 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
 September 1, 2012

Present Elevations & Storages:

<u>Reservoir</u>	<u>Elevation</u>	<u>Storage</u>	<u>Percent of Average</u>	<u>Percent Full</u>
Boysen	4712.97	535,117	87	72
Buffalo Bill	5377.19	520,323	103	80
Bighorn Lake	3628.39	896,876	93	88

Actual Inflows (1,000 Acre-Feet):

<u>Month</u>	<u>Inflow</u>	<u>Percent of Average</u>
<i>April-July, 2011</i>	<i>2,572.3</i>	<i>226</i>
<i>WY-2011 Total</i>	<i>3,817.0</i>	<i>163</i>
October	213.6	123
November	142.3	98
December	132.4	103
January	136.2	108
February	137.5	106
March	177.2	107
April	149.7	93
May	204.7	78
June	238.5	54
July	100.2	35
August	102.7	65
<i>April-July, 2012</i>	<i>693.1</i>	<i>61</i>

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

<u>Month</u>	<u>Gains</u>	<u>Percent of Average</u>
<i>April-July, 2011</i>	<i>717.7</i>	<i>460</i>
<i>WY-2011 Total</i>	<i>996.7</i>	<i>207</i>
October	91.7	129
November	64.6	104
December	52.3	121
January	56.8	123
February	63.3	119
March	92.1	124
April	35.0	100
May	13.5	23
June	23.7	----
July	-95.8	----
August	-78.8	----
<i>April-July, 2012</i>	<i>-23.6</i>	<i>----</i>

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

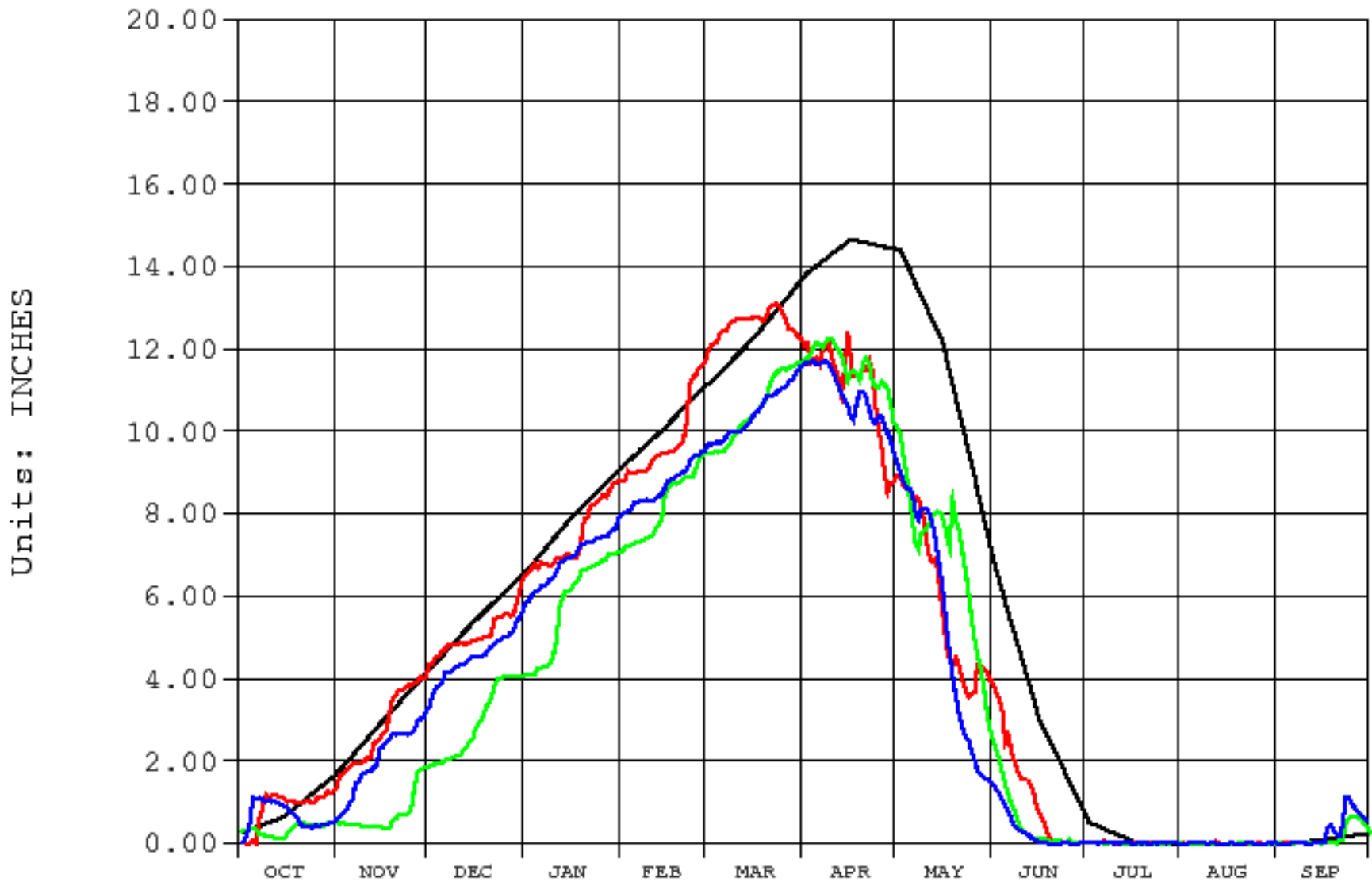
<u>Agency</u>	<u>Inflows</u>	<u>Percent of Average</u>
USBR	132.8	78

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
 NRCS SNOTEL DATA UNAVAILABLE DURING JUNE-OCTOBER

Archive Data From 1-OCT Through 30-SEP

Plotted 09/05/2012 16:06 (Provisional Data Subject to Revision)



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

SE_AVG Snow Water Equivalent Average (inches)

SE Snow Water Equivalent (inches)

2012

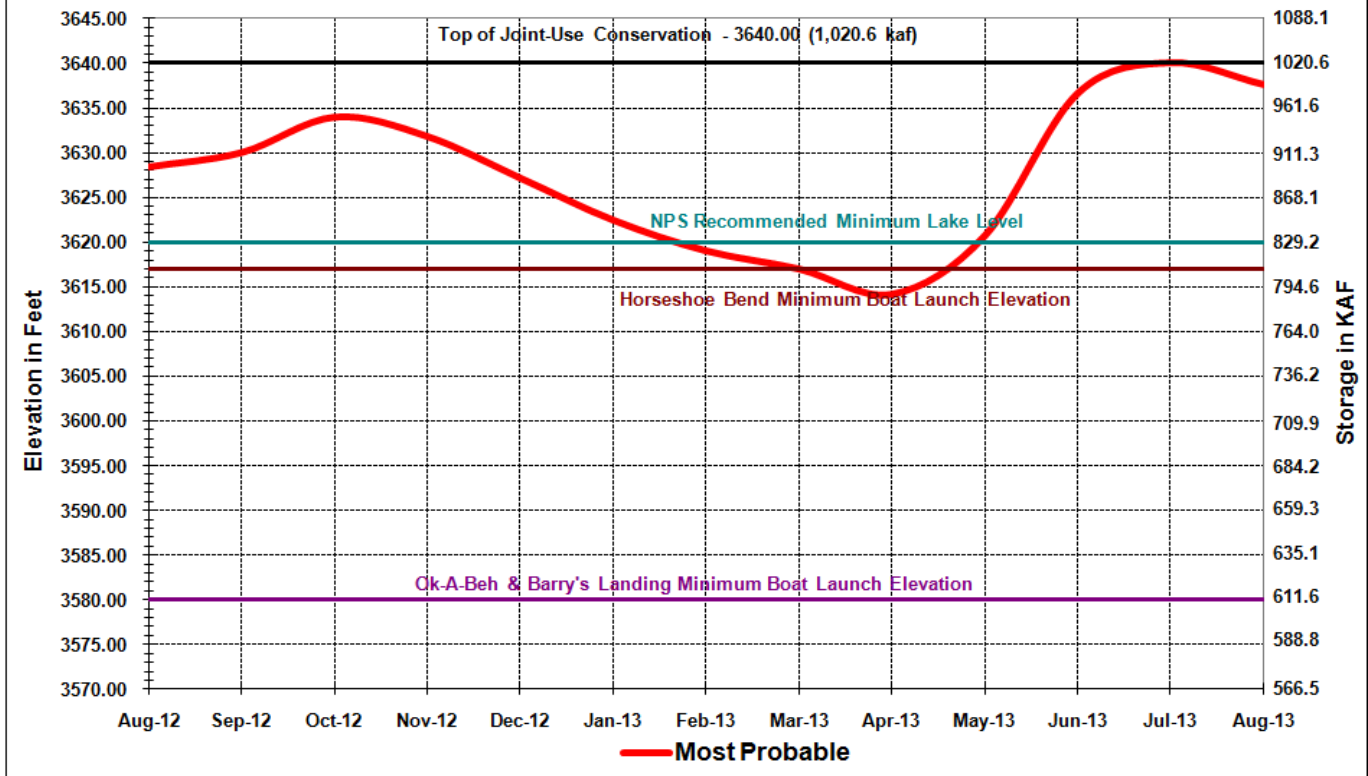
2012 2000 2006

BIGHORN LAKE MONTHLY OPERATIONS

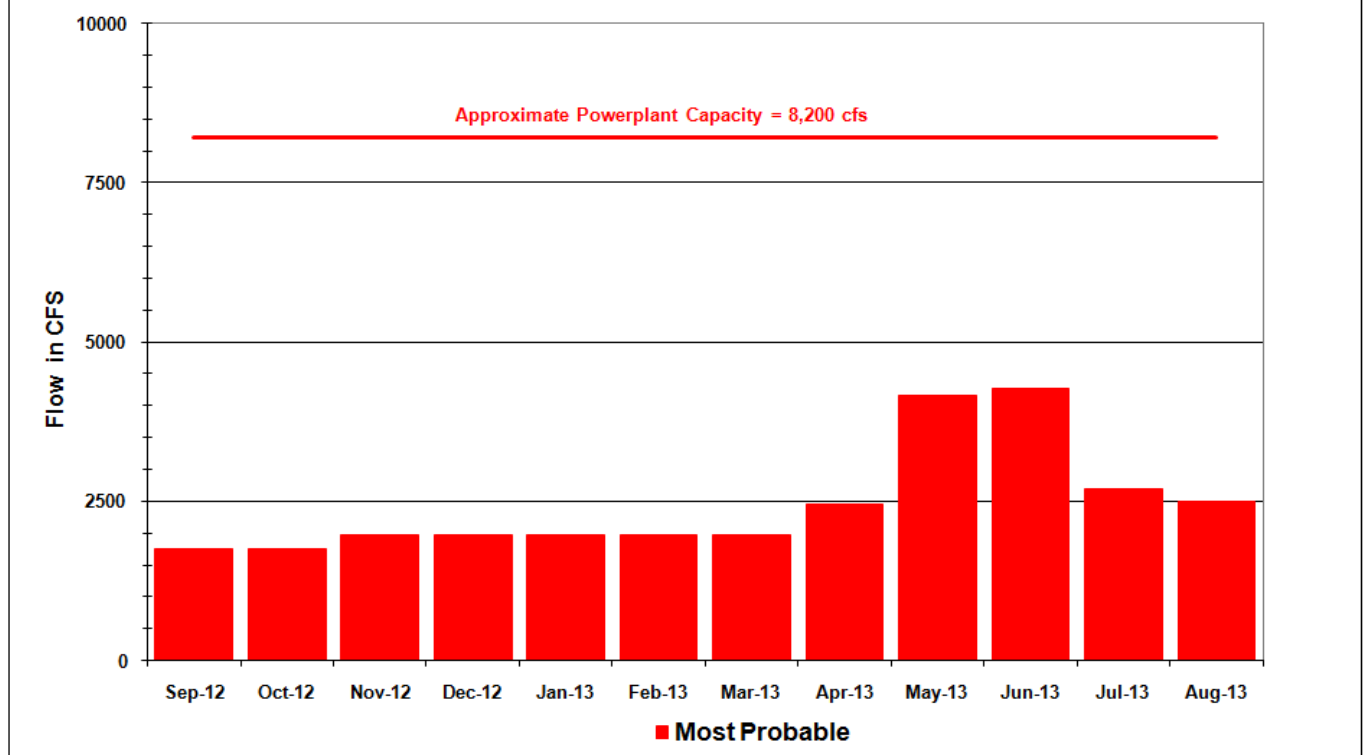
Bighorn Reservoir		Initial Cont Elev 896.9 kaf 3628.39 ft				Maximum Cont Elev 1278.9 kaf 3657.00 ft				Minimum Cont Elev 469.9 kaf 3547.00 ft				Total
	2012	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
Boysen Release	kaf	53.6	46.1	29.8	30.8	30.8	27.8	30.7	62.5	140.4	132.4	131.6	90.0	806.5
Boysen Release	cfs	901	750	501	501	501	501	499	1050	2283	2225	2140	1464	
Buffalo Bill Release	kaf	82.3	36.4	12.2	12.6	12.6	11.4	12.6	31.7	118.3	201.1	165.5	104.3	801.0
Buffalo Bill Release	cfs	1383	592	205	205	205	205	205	533	1924	3380	2692	1696	
Station Gain	kaf	-3.1	63.0	49.1	31.3	35.5	40.9	59.5	30.1	49.2	89.6	-63.5	-47.1	334.5
Monthly Inflow	kaf	132.8	145.5	91.1	74.7	78.9	80.1	102.8	124.3	307.9	423.1	233.6	147.2	1942.0
Monthly Inflow	cfs	2232	2366	1531	1215	1283	1442	1672	2089	5008	7110	3799	2394	
Turbine Release	kaf	118.5	106.5	113.2	117.0	117.0	105.7	117.0	142.8	262.7	278.0	192.7	176.8	1847.9
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	118.5	106.5	113.2	117.0	117.0	105.7	117.0	142.8	262.7	278.0	192.7	176.8	1847.9
Total Release	cfs	1991	1732	1902	1903	1903	1903	1903	2400	4272	4672	3134	2875	
Spring Flow	kaf	4.2	4.3	4.2	4.3	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	50.8
Irrigation Reqmnt	kaf	18.6	3.2	0.0	0.0	0.0	0.0	0.0	0.8	11.0	28.6	30.7	27.4	120.3
Afterbay Rels	kaf	122.7	110.8	117.4	121.3	121.3	109.6	121.3	147.0	267.0	282.2	197.0	181.1	1898.7
Afterbay Rels	cfs	2062	1802	1973	1973	1973	1973	1973	2470	4342	4743	3204	2945	
River Release	kaf	104.1	107.6	117.4	121.3	121.3	109.6	121.3	146.2	256.0	253.6	166.3	153.7	1778.4
River Release	cfs	1749	1750	1973	1973	1973	1973	1973	2457	4163	4262	2705	2500	
Min Release	kaf	104.1	107.6	104.1	107.6	107.6	97.2	107.6	119.0	153.7	148.8	153.7	153.7	1464.7
End-Month Targets	kaf		1020.6					807.9				1020.6		
End-Month Content	kaf	911.2	950.2	928.1	885.8	847.7	822.1	807.9	789.4	834.6	979.7	1020.6	991.0	
End-Month Elevation	ft	3629.99	3633.94	3631.77	3627.12	3622.44	3619.02	3617.00	3614.19	3620.72	3636.60	3640.00	3637.57	
Net Change Content	kaf	14.3	39.0	-22.1	-42.3	-38.1	-25.6	-14.2	-18.5	45.2	145.1	40.9	-29.6	94.1
Yellowtail Power	2012	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
Turbine Release	kaf	118.5	106.5	113.2	117.0	117.0	105.7	117.0	142.8	262.7	278.0	192.7	176.8	1847.9
Generation	gwh	42.778	37.939	40.644	41.857	41.416	36.353	40.904	51.586	103.749	113.913	77.435	69.820	698.394
End-Month Power Cap	mw	278.0	281.8	279.7	275.3	270.8	267.6	265.7	263.0	269.2	284.3	287.5	285.2	
% Max Gen		21	18	20	20	19	19	19	25	48	55	36	33	
Ave kwh/af		361	356	359	358	354	344	350	361	395	410	402	395	378
Upstream Generation	gwh	20.840	12.611	5.448	5.673	5.691	5.148	5.731	12.778	34.484	33.776	35.160	28.507	205.847
Total Generation	gwh	63.618	50.550	46.092	47.530	47.107	41.501	46.635	64.364	138.233	147.689	112.595	98.327	904.241

BIGHORN LAKE

BIGHORN LAKE ELEVATION



BIGHORN RIVER FLOW BELOW AFTERBAY



WATER YEAR 2012

Supplemental Information

BHXAOP V1.14 Run: 05-Sep-2012 13:16
 Based on Minimum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 896.9 kaf Elev 3628.39 ft				Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
		2012	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
Boysen Release	kaf	53.6	46.1	29.8	30.7	30.7	27.8	30.7	44.6	67.6	69.9	76.9	69.2	577.6
Boysen Release	cfs	901	750	501	499	499	501	499	750	1099	1175	1251	1125	
Buffalo Bill Release	kaf	82.3	28.3	12.2	12.6	12.6	11.4	12.6	31.7	101.2	105.0	118.7	104.3	632.9
Buffalo Bill Release	cfs	1383	460	205	205	205	205	205	533	1646	1765	1930	1696	
Station Gain	kaf	-11.6	41.7	42.2	25.4	29.0	32.8	51.9	23.5	29.6	1.3	-70.0	-85.0	110.8
Monthly Inflow	kaf	124.3	116.1	84.2	68.7	72.3	72.0	95.2	99.8	198.4	176.2	125.6	88.5	1321.3
Monthly Inflow	cfs	2089	1888	1415	1117	1176	1296	1548	1677	3227	2961	2043	1439	
Turbine Release	kaf	118.7	103.3	99.9	103.3	103.3	93.3	103.3	100.8	129.1	125.7	131.5	130.7	1342.9
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	118.7	103.3	99.9	103.3	103.3	93.3	103.3	100.8	129.1	125.7	131.5	130.7	1342.9
Total Release	cfs	1995	1680	1679	1680	1680	1680	1680	1694	2100	2112	2139	2126	
Spring Flow	kaf	4.2	4.3	4.2	4.3	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	50.8
Irrigation Reqmnt	kaf	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.9	25.8	25.8	28.2	27.4	126.9
Afterbay Rels	kaf	122.9	107.6	104.1	107.6	107.6	97.2	107.6	105.0	133.4	129.9	135.8	135.0	1393.7
Afterbay Rels	cfs	2065	1750	1749	1750	1750	1750	1750	1765	2170	2183	2209	2196	
River Release	kaf	104.1	107.6	104.1	107.6	107.6	97.2	107.6	104.1	107.6	104.1	107.6	107.6	1266.8
River Release	cfs	1749	1750	1749	1750	1750	1750	1750	1749	1750	1749	1750	1750	
Min Release	kaf	104.1	107.6	104.1	107.6	107.6	97.2	107.6	104.1	107.6	104.1	107.6	107.6	1266.8
End-Month Targets	kaf		997.0					807.9				1020.6		
End-Month Content	kaf	902.5	915.3	899.6	865.0	834.0	812.7	804.6	803.6	872.9	923.4	917.5	875.3	
End-Month Elevation	ft	3629.02	3630.43	3628.70	3624.62	3620.64	3617.69	3616.51	3616.36	3625.58	3631.28	3630.66	3625.87	
Net Change Content	kaf	5.6	12.8	-15.7	-34.6	-31.0	-21.3	-8.1	-1.0	69.3	50.5	-5.9	-42.2	-21.6
Yellowtail Power	2012	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
Turbine Release	kaf	118.7	103.3	99.9	103.3	103.3	93.3	103.3	100.8	129.1	125.7	131.5	130.7	1342.9
Generation	gwh	42.772	36.282	34.708	35.811	35.489	31.165	35.155	34.117	46.947	46.053	48.543	47.675	474.717
End-Month Power Cap	mw	277.1	278.4	276.8	272.9	269.1	266.3	265.2	265.1	273.8	279.2	278.7	274.1	
% Max Gen		21	17	17	17	17	16	16	16	22	22	23	22	
Ave kwh/af		360	351	347	347	344	334	340	338	364	366	369	365	354
Upstream Generation	gwh	20.421	10.287	5.434	5.638	5.644	5.099	5.666	11.202	25.450	25.439	27.789	24.898	172.967
Total Generation	gwh	63.193	46.569	40.142	41.449	41.133	36.264	40.821	45.319	72.397	71.492	76.332	72.573	647.684

BHXAOP V1.14 Run: 05-Sep-2012 13:51
 Based on Maximum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont Elev 3628.39 ft				Maximum Cont Elev 3657.00 ft				Minimum Cont Elev 3547.00 ft				Total	
		2012	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
Boysen Release	kaf	53.6	46.1	29.8	30.8	30.7	27.8	96.8	105.5	182.6	280.3	289.6	110.7	1284.3	
Boysen Release	cfs	901	750	501	501	499	501	1574	1773	2970	4711	4710	1800		
Buffalo Bill Release	kaf	82.3	36.8	12.2	12.6	12.6	11.4	12.6	61.3	241.9	279.3	283.7	120.0	1166.7	
Buffalo Bill Release	cfs	1383	598	205	205	205	205	205	1030	3934	4694	4614	1952		
Station Gain	kaf	7.8	69.7	55.9	37.2	42.1	49.1	67.0	33.3	78.8	211.1	-22.9	-40.4	588.7	
Monthly Inflow	kaf	143.7	152.6	97.9	80.6	85.4	88.3	176.4	200.1	503.3	770.7	550.4	190.3	3039.7	
Monthly Inflow	cfs	2415	2482	1645	1311	1389	1590	2869	3363	8185	12952	8951	3095		
Turbine Release	kaf	118.7	103.3	137.4	142.1	142.1	128.3	142.0	277.0	513.1	476.0	475.4	453.5	3108.9	
Bypass/Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.3	0.0	0.0	70.3	
Total Release	kaf	118.7	103.3	137.4	142.1	142.1	128.3	142.0	277.0	513.1	546.3	475.4	453.5	3179.2	
Total Release	cfs	1995	1680	2309	2311	2311	2310	2309	4655	8345	9181	7732	7375		
Spring Flow	kaf	4.2	4.3	4.2	4.3	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	50.8	
Irrigation Reqmnt	kaf	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.9	25.8	25.8	28.2	27.4	126.9	
Afterbay Rels	kaf	122.9	107.6	141.6	146.4	146.4	132.2	146.3	281.2	517.4	550.5	479.7	457.8	3230.0	
Afterbay Rels	cfs	2065	1750	2380	2381	2381	2380	2379	4726	8415	9251	7802	7445		
River Release	kaf	104.1	107.6	141.6	146.4	146.4	132.2	146.3	280.3	491.6	524.7	451.5	430.4	3103.1	
River Release	cfs	1749	1750	2380	2381	2381	2380	2379	4711	7995	8818	7343	7000		
Min Release	kaf	104.1	107.6	119.0	123.0	123.0	111.1	123.0	119.0	153.7	148.8	153.7	107.6	1493.6	
End-Month Targets	kaf		1020.6					807.9				1020.6			
End-Month Content	kaf	921.9	971.2	931.7	870.2	813.5	773.5	807.9	731.0	721.2	945.6	1020.6	757.4		
End-Month Elevation	ft	3631.13	3635.86	3632.14	3625.26	3617.81	3611.61	3617.00	3604.02	3602.16	3633.50	3640.00	3608.85		
Net Change Content	kaf	25.0	49.3	-39.5	-61.5	-56.7	-40.0	34.4	-76.9	-9.8	224.4	75.0	-263.2	-139.5	
Yellowtail Power	2012	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	
Turbine Release	kaf	118.7	103.3	137.4	142.1	142.1	128.3	142.0	277.0	513.1	476.0	475.4	453.5	3108.9	
Generation	gwh	42.974	36.721	51.324	52.601	51.716	45.129	51.576	105.344	195.887	194.400	194.835	172.421	1194.928	
End-Month Power Cap	mw	279.1	283.6	280.1	273.5	266.4	260.6	265.7	253.3	251.6	281.4	287.5	257.9		
% Max Gen		21	17	25	25	24	23	24	51	91	94	91	80		
Ave kwh/af		362	355	374	370	364	352	363	380	382	408	410	380	384	
Upstream Generation	gwh	20.887	12.800	5.517	5.744	5.766	5.231	11.257	24.583	33.588	33.657	35.225	33.390	227.645	
Total Generation	gwh	63.861	49.521	56.841	58.345	57.482	50.360	62.833	129.927	229.475	228.057	230.060	205.811	1422.573	