

RECLAMATION

Managing Water in the West

May 9, 2012

Dear Customer:

Attached is the monthly water supply outlook and projected operations for Yellowtail Dam and Powerplant. Streamflows into Bighorn Lake during April were 93% of average. Mountain snowpack in the Bighorn Basin above Yellowtail Dam is 63 percent of average. Based on the May 1 water supply forecast and the planned releases out of Boysen and Buffalo Bill Reservoirs, the May-July runoff into Bighorn Lake is expected to equal 600,000 acre-feet (61% 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, 2012

Present Elevations & Storages:

<u>Reservoir</u>	<u>Elevation</u>	<u>Storage</u>	<u>Percent of Average</u>	<u>Percent Full</u>
Boysen	4718.80	627,456	119	85
Buffalo Bill	5371.77	480,646	122	74
Bighorn Lake	3615.51	797,938	102	78

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

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

<u>Agency</u>	<u>Inflows</u>	<u>Percent of Average</u>
USBR	600.0	61

Snowpack Conditions:

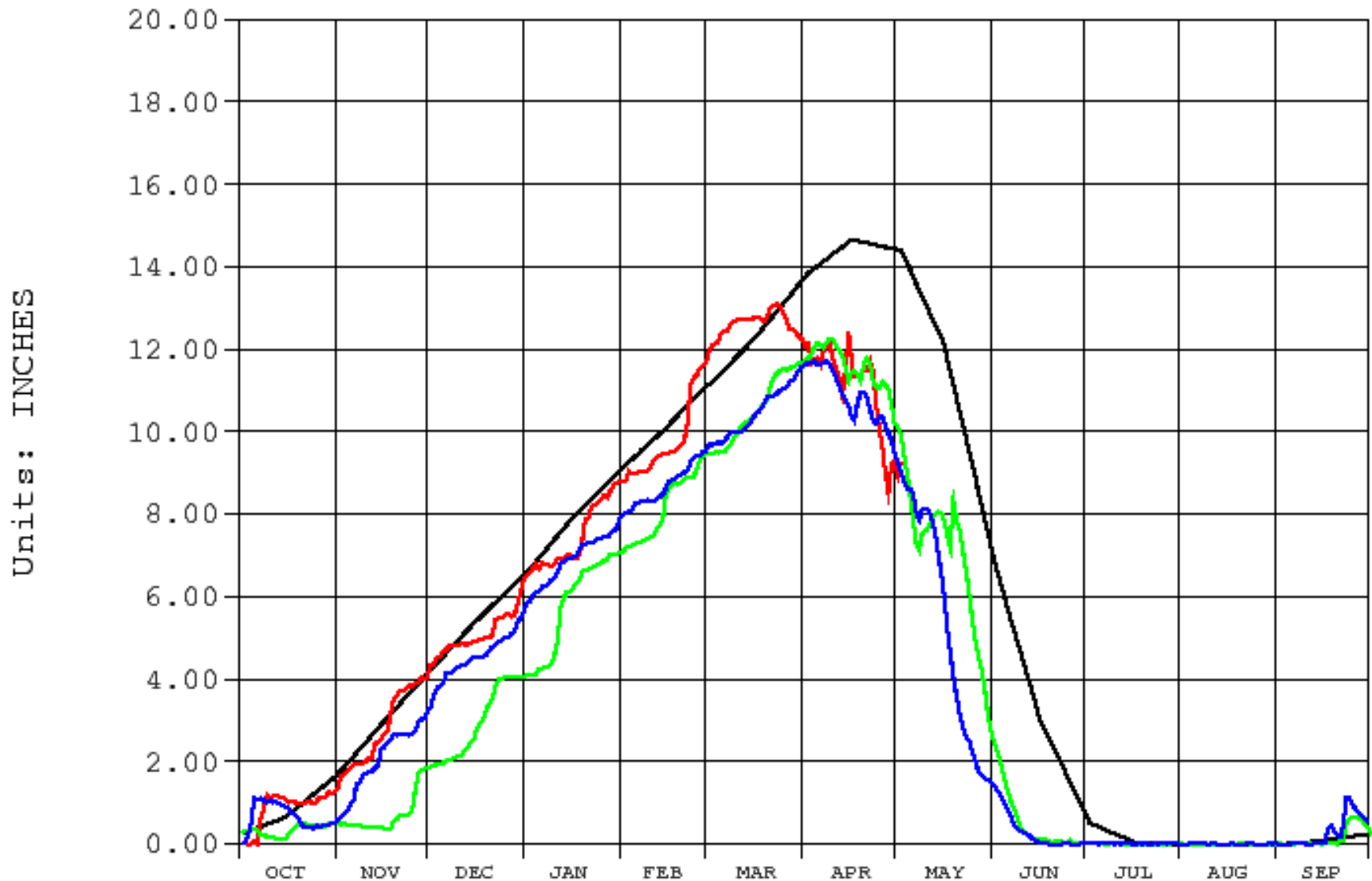
S N O W - P R E C I P I T A T I O N U P D A T E
Based on Mountain Data from NRCS SNOTEL Sites
As of TUESDAY: MAY 1 , 2012

BASIN Data Site Name	ELEV. (Ft)	SNOW WATER EQUIVALENT			TOTAL PRECIPITATION		
		Current	Average	Avg %	Current	Average	Avg %
UPPER YELLOWSTONE RIVER BASIN							
BEARTOOTH LAKE	9360	26.9	25.9	104	28.3	23.5	120
BOX CANYON	6670	.0	6.0	0	14.4	14.9	97
BRACKETT CREEK	7320	21.6	21.5	100	31.6	30.7	103
BURNT MTN CANYON	5880	.0	1.0	0	14.2	20.2	70
CANYON	7870	9.3	11.3	82	18.2	17.7	103
COLE CREEK	7850	12.8	19.7	65	14.5	21.9	66
EAST BOULDER MINE	6335	.0	-M	*	15.9	-M	*
EVENING STAR	9200	30.0	33.3	90	36.8	29.9	123
FISHER CREEK	9100	39.7	37.8	105	41.6	41.9	99
MONUMENT PEAK	8850	20.7	23.2	89	26.8	24.8	108
NORTHEAST ENTRANCE	7350	.5	7.1	7	16.3	14.8	110
PARKER PEAK	9400	24.0	24.5	98	26.9	19.5	138
PLACER BASIN	8830	17.0	19.8	86	24.6	23.5	105
PORCUPINE	6500	2.4	3.6	67	15.6	14.9	105

S FORK SHIELDS	8100	19.0	19.6	97	33.5	25.6	131
SACAJAWEA	6550	9.1	12.8	71	29.7	27.6	108
SHOWER FALLS	8100	25.2	26.9	94	32.0	30.5	105
SYLVAN LAKE	8420	14.7	23.8	62	29.6	24.7	120
SYLVAN ROAD	7120	.0	8.1	0	21.4	20.5	104
THUMB DIVIDE	7980	9.8	14.9	66	21.7	22.0	99
TWO OCEAN PLATEAU	9240	36.4	31.8	114	32.3	32.1	101
WHITE MILL	8700	26.2	26.4	99	29.1	31.2	93
WOLVERINE	7650	.0	7.2	0	14.4	15.2	95
YOUNTS PEAK	8350	13.5	18.1	75	18.0	18.8	96
Basin wide percent of average				85			105
WIND RIVER BASIN							
BURROUGHS CREEK	8750	11.2	13.6	82	15.3	19.3	79
CASTLE CREEK	8400	.0	-M	*	9.2	-M	*
COLD SPRINGS	9630	.0	4.8	0	9.9	13.9	71
DEER PARK	9700	7.1	18.6	38	19.6	27.0	73
HOBBS PARK	10100	9.6	18.0	53	15.1	16.9	89
KIRWIN	9550	6.8	13.0	52	15.7	14.2	111
LITTLE WARM	9370	.4	11.1	4	13.2	16.8	79
OWL CREEK	8975	.0	4.0	0	5.9	8.2	72
SOUTH PASS	9040	7.4	18.0	41	14.8	22.7	65
ST. LAWRENCE ALT	8620	.0	6.1	0	8.5	12.1	70
TOGWOTEE PASS	9580	20.9	27.9	75	27.1	29.0	93
TOWNSEND CREEK	8700	.0	9.1	0	12.8	15.5	83
YOUNTS PEAK	8350	13.5	18.1	75	18.0	18.8	96
Basin wide percent of average				47			82
SHOSHONE BASIN							
BLACKWATER	9780	25.3	28.8	88	27.5	24.7	111
EVENING STAR	9200	30.0	33.3	90	36.8	29.9	123
MARQUETTE	8760	4.0	-M	*	12.9	13.7	94
SYLVAN LAKE	8420	14.7	23.8	62	29.6	24.7	120
SYLVAN ROAD	7120	.0	8.1	0	21.4	20.5	104
YOUNTS PEAK	8350	13.5	18.1	75	18.0	18.8	96
Basin wide percent of average				74			111
BIGHORN BASIN ABOVE YELLOWTAIL DAM							
BALD MTN.	9380	23.2	23.6	98	18.9	21.3	89
BEAR TRAP MEADOW	8200	.0	2.5	0	11.3	10.9	104
BLACKWATER	9780	25.3	28.8	88	27.5	24.7	111
BONE SPRINGS DIV	9350	19.0	18.3	104	18.8	18.3	103
BURROUGHS CREEK	8750	11.2	13.6	82	15.3	19.3	79
CASTLE CREEK	8400	.0	-M	*	9.2	-M	*
COLD SPRINGS	9630	.0	4.8	0	9.9	13.9	71
DEER PARK	9700	7.1	18.6	38	19.6	27.0	73
EVENING STAR	9200	30.0	33.3	90	36.8	29.9	123
GRAVE SPRINGS	8550	3.7	11.1	33	13.3	13.1	102
KIRWIN	9550	6.8	13.0	52	15.7	14.2	111
LITTLE WARM	9370	.4	11.1	4	13.2	16.8	79
MARQUETTE	8760	4.0	-M	*	12.9	13.7	94
MIDDLE POWDER	7760	6.2	14.3	43	13.4	15.8	85
OWL CREEK	8975	.0	4.0	0	5.9	8.2	72
POWDER RIVER PASS	9480	6.1	10.7	57	19.1	15.8	121
SHELL CREEK	9580	20.4	16.8	121	20.0	16.8	119
SOUTH PASS	9040	7.4	18.0	41	14.8	22.7	65
ST. LAWRENCE ALT	8620	.0	6.1	0	8.5	12.1	70
SYLVAN LAKE	8420	14.7	23.8	62	29.6	24.7	120
SYLVAN ROAD	7120	.0	8.1	0	21.4	20.5	104
TIMBER CREEK	7950	.0	4.8	0	9.6	10.5	91
TOGWOTEE PASS	9580	20.9	27.9	75	27.1	29.0	93
TOWNSEND CREEK	8700	.0	9.1	0	12.8	15.5	83
YOUNTS PEAK	8350	13.5	18.1	75	18.0	18.8	96
Basin wide percent of average				63			95

Archive Data From 1-OCT Through 30-SEP

Plotted 05/01/2012 14:42 (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

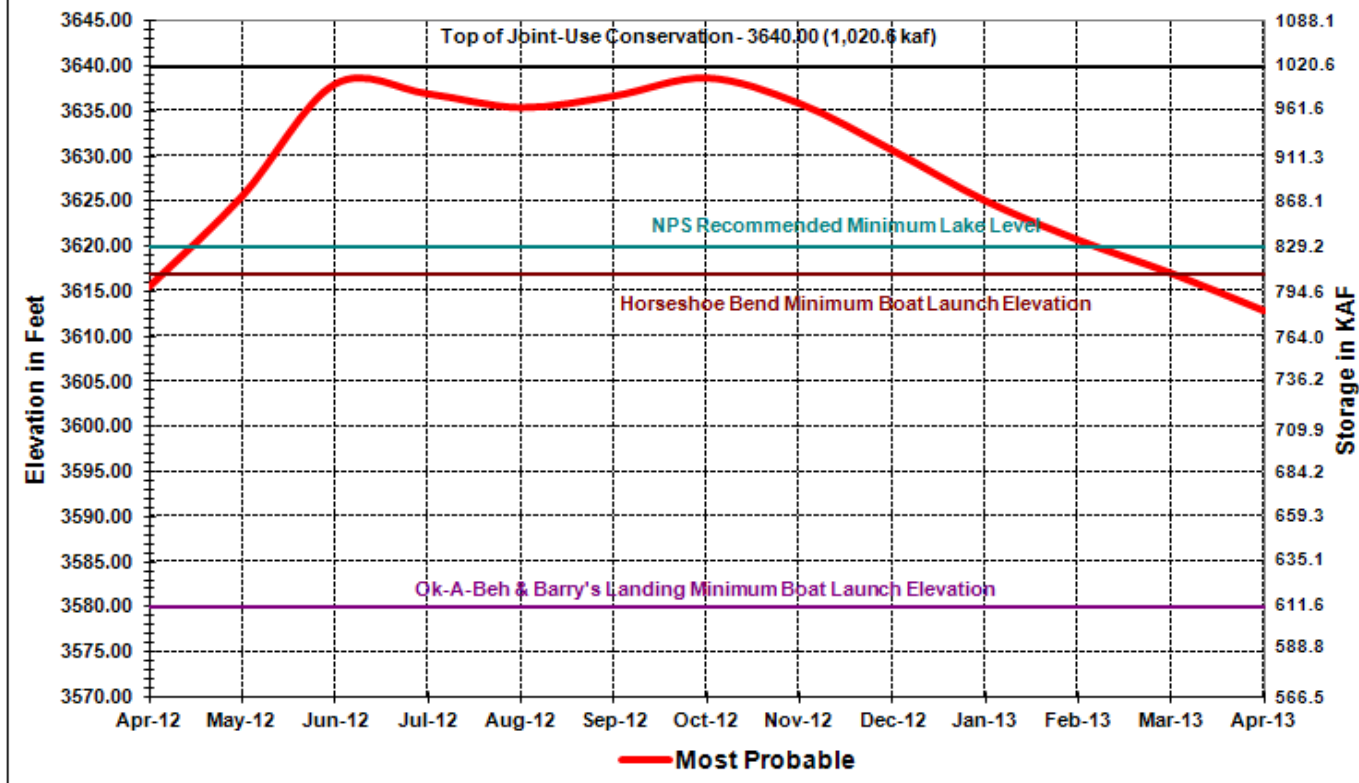
2012 2000 2006

BIGHORN LAKE MONTHLY OPERATIONS

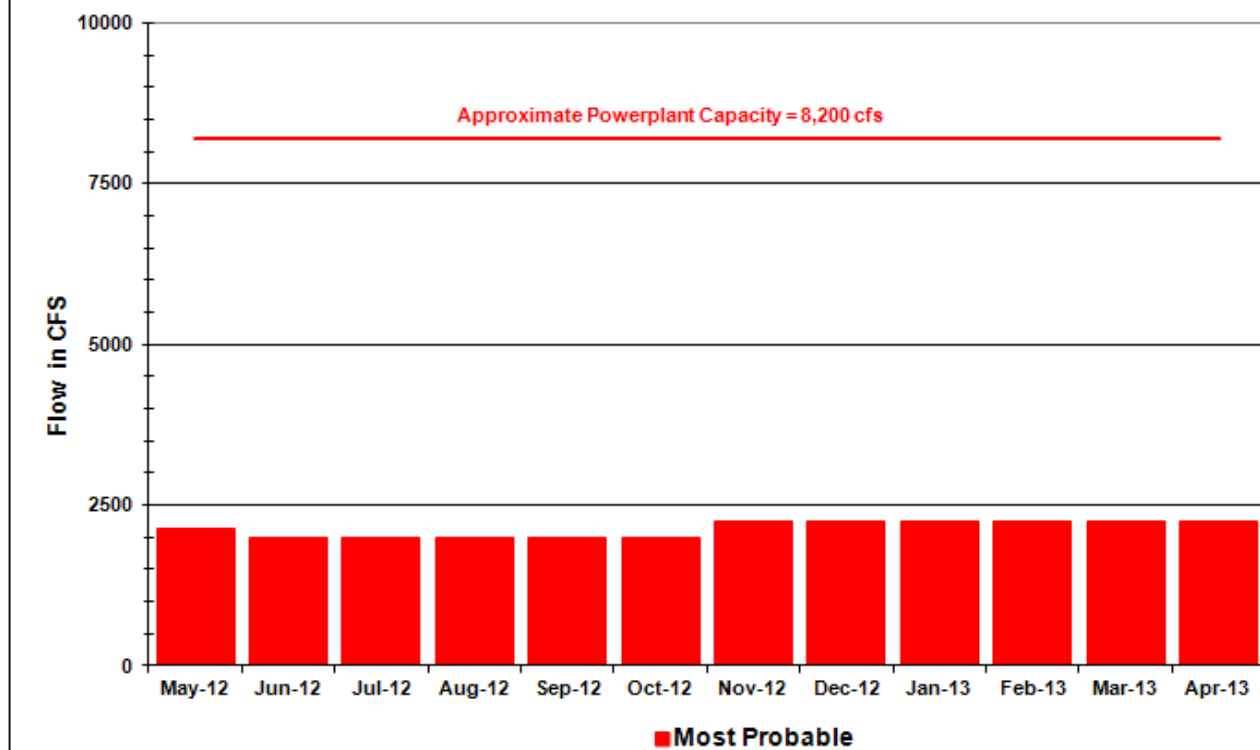
Bighorn Reservoir		Initial Cont 797.9 kaf Elev 3615.50 ft				Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
	2012	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Boysen Release	kaf	74.4	74.4	79.9	69.2	59.5	46.1	29.9	30.8	30.8	27.9	30.8	50.6	604.3
Boysen Release	cfs	1210	1250	1299	1125	1000	750	502	501	501	502	501	850	
Buffalo Bill Riv Flo	kaf	106.4	146.5	121.5	104.3	82.3	45.5	21.1	21.8	21.8	19.7	21.8	31.7	744.4
Buffalo Bill Riv Flo	cfs	1730	2462	1976	1696	1383	740	355	355	355	355	355	533	
Station Gain	kaf	24.0	40.0	-67.0	-44.7	6.2	50.7	51.3	33.7	38.5	44.6	60.8	27.0	265.1
Monthly Inflow	kaf	204.8	260.9	134.4	128.8	148.0	142.3	102.3	86.3	91.1	92.2	113.4	109.3	1613.8
Monthly Inflow	cfs	3331	4385	2186	2095	2487	2314	1719	1404	1482	1660	1844	1837	
Turbine Release	kaf	152.5	140.6	146.9	146.1	133.6	118.7	130.3	134.7	134.7	121.7	134.7	131.2	1625.7
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	152.5	140.6	146.9	146.1	133.6	118.7	130.3	134.7	134.7	121.7	134.7	131.2	1625.7
Total Release	cfs	2480	2363	2389	2376	2245	1930	2190	2191	2191	2191	2191	2205	
Spring Flow	kaf	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	3.9	4.3	4.2	50.8
Irrigation Reqmnt	kaf	25.8	25.8	28.2	27.4	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.9	126.9
Afterbay Rels	kaf	156.8	144.8	151.2	150.4	137.8	123.0	134.5	139.0	139.0	125.6	139.0	135.4	1676.5
Afterbay Rels	cfs	2550	2433	2459	2446	2316	2000	2260	2261	2261	2262	2261	2275	
River Release	kaf	131.0	119.0	123.0	123.0	119.0	123.0	134.5	139.0	139.0	125.6	139.0	134.5	1549.6
River Release	cfs	2131	2000	2000	2000	2000	2000	2260	2261	2261	2262	2261	2260	
Min Release	kaf	131.0	119.0	123.0	123.0	119.0	123.0	119.0	123.0	123.0	111.1	123.0	134.5	1471.6
End-Month Targets	kaf			1020.6			1020.6					807.9		
End-Month Content	kaf	850.2	970.5	958.0	940.7	955.1	978.7	950.7	902.3	858.7	829.2	807.9	786.0	
End-Month Elevation	ft	3622.76	3635.80	3634.66	3633.03	3634.40	3636.52	3633.99	3629.00	3623.84	3620.00	3617.00	3613.65	
Net Change Content	kaf	52.3	120.3	-12.5	-17.3	14.4	23.6	-28.0	-48.4	-43.6	-29.5	-21.3	-21.9	-11.9
Yellowtail Power	2012	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Turbine Release	kaf	152.5	140.6	146.9	146.1	133.6	118.7	130.3	134.7	134.7	121.7	134.7	131.2	1625.7
Generation	gwh	57.626	54.810	58.305	57.706	52.743	47.153	51.724	52.799	51.965	46.332	50.793	49.061	631.017
End-Month Power Cap	mw	265.3	278.7	277.5	275.7	277.2	279.5	276.7	271.6	266.4	262.6	259.7	256.5	
% Max Gen		27	26	27	27	25	22	25	25	24	24	24	24	
Ave kwh/af		378	390	397	395	395	397	397	392	386	381	377	374	388
Upstream Generation	gwh	27.227	28.953	29.259	25.627	21.281	15.279	8.049	8.336	8.332	7.518	8.336	11.734	199.931
Total Generation	gwh	84.853	83.763	87.564	83.333	74.024	62.432	59.773	61.135	60.297	53.850	59.129	60.795	830.948

BIGHORN LAKE

BIGHORN LAKE ELEVATION



BIGHORN RIVER FLOW BELOW AFTERBAY



WATER YEAR 2012

Supplemental Information

BHXAOP V1.12 Run: 08-May-2012 15:19
 Based on Minimum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 797.9 kaf Elev 3615.50 ft				Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
	2012	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Boysen Release	kaf	74.4	74.4	79.9	69.2	59.5	46.1	29.8	30.7	30.7	27.8	30.7	44.6	597.8
Boysen Release	cfs	1210	1250	1299	1125	1000	750	501	499	499	501	499	750	
Buffalo Bill Riv Flo	kaf	106.4	111.6	121.5	104.3	82.3	28.3	12.2	12.6	12.6	11.4	12.6	31.7	647.5
Buffalo Bill Riv Flo	cfs	1730	1876	1976	1696	1383	460	205	205	205	205	205	533	
Station Gain	kaf	11.5	-22.2	-109.9	-85.0	-2.5	40.0	44.2	28.0	32.1	36.6	53.1	22.5	48.4
Monthly Inflow	kaf	192.3	163.8	91.5	88.5	139.3	114.4	86.2	71.3	75.4	75.8	96.4	98.8	1293.7
Monthly Inflow	cfs	3127	2753	1488	1439	2341	1861	1449	1160	1226	1365	1568	1660	
Turbine Release	kaf	129.7	110.9	116.1	115.3	103.9	87.9	106.1	109.7	109.7	99.1	109.8	110.5	1308.7
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	129.7	110.9	116.1	115.3	103.9	87.9	106.1	109.7	109.7	99.1	109.8	110.5	1308.7
Total Release	cfs	2109	1864	1888	1875	1746	1430	1783	1784	1784	1784	1786	1857	
Spring Flow	kaf	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	3.9	4.3	4.2	50.8
Irrigation Reqmnt	kaf	25.8	25.8	28.2	27.4	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.9	126.9
Afterbay Rels	kaf	134.0	115.1	120.4	119.6	108.1	92.2	110.3	114.0	114.0	103.0	114.1	114.7	1359.5
Afterbay Rels	cfs	2179	1934	1958	1945	1817	1499	1854	1854	1854	1855	1856	1928	
River Release	kaf	108.2	89.3	92.2	92.2	89.3	92.2	110.3	114.0	114.0	103.0	114.1	113.8	1232.6
River Release	cfs	1760	1501	1499	1499	1501	1499	1854	1854	1854	1855	1856	1912	
Min Release	kaf	108.2	89.3	92.2	92.2	89.3	92.2	89.3	92.2	92.2	83.3	92.2	113.8	1126.4
End-Month Targets	kaf			1020.6			997.0					794.6		
End-Month Content	kaf	860.5	913.4	888.8	862.0	897.4	923.9	904.0	865.6	831.3	808.0	794.6	782.9	
End-Month Elevation	ft	3624.06	3630.22	3627.46	3624.25	3628.45	3631.34	3629.19	3624.69	3620.28	3617.01	3615.00	3613.15	
Net Change Content	kaf	62.6	52.9	-24.6	-26.8	35.4	26.5	-19.9	-38.4	-34.3	-23.3	-13.4	-11.7	-15.0
Yellowtail Power	2012	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Turbine Release	kaf	129.7	110.9	116.1	115.3	103.9	87.9	106.1	109.7	109.7	99.1	109.8	110.5	1308.7
Generation	gwh	49.106	42.881	45.115	44.400	40.072	34.269	41.412	42.385	41.833	37.385	41.129	41.187	501.174
End-Month Power Cap	mw	266.6	272.8	270.0	266.8	271.0	273.9	271.8	267.2	262.9	259.7	257.8	256.0	
% Max Gen		23	21	21	21	19	16	20	20	20	19	19	20	
Ave kwh/af		379	387	389	385	386	390	390	386	381	377	375	373	383
Upstream Generation	gwh	27.126	27.224	28.483	24.696	20.266	9.898	5.250	5.454	5.461	4.934	5.486	10.816	175.094
Total Generation	gwh	76.232	70.105	73.598	69.096	60.338	44.167	46.662	47.839	47.294	42.319	46.615	52.003	676.268

BHXAOP V1.12 Run: 08-May-2012 15:19
 Based on Maximum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 797.9 kaf Elev 3615.50 ft				Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
	2012	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Boysen Release	kaf	74.4	94.4	79.9	74.7	59.5	61.5	59.5	61.5	61.5	55.5	61.5	84.1	828.0
Boysen Release	cfs	1210	1586	1299	1215	1000	1000	1000	1000	1000	999	1000	1413	
Buffalo Bill Riv Flo	kaf	119.7	153.4	163.1	151.3	102.7	49.9	21.1	21.8	21.8	19.7	21.8	41.3	887.6
Buffalo Bill Riv Flo	cfs	1947	2578	2653	2461	1726	812	355	355	355	355	355	694	
Station Gain	kaf	50.6	106.4	-45.5	-40.4	18.0	64.7	51.9	34.1	39.0	45.2	61.4	27.4	412.8
Monthly Inflow	kaf	244.7	354.2	197.5	185.6	180.2	176.1	132.5	117.4	122.3	120.4	144.7	152.8	2128.4
Monthly Inflow	cfs	3980	5953	3212	3018	3028	2864	2227	1909	1989	2168	2353	2568	
Turbine Release	kaf	175.2	220.9	177.6	194.4	180.4	167.1	166.0	171.6	171.6	155.0	171.7	145.5	2097.0
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	175.2	220.9	177.6	194.4	180.4	167.1	166.0	171.6	171.6	155.0	171.7	145.5	2097.0
Total Release	cfs	2849	3712	2888	3162	3032	2718	2790	2791	2791	2791	2792	2445	
Spring Flow	kaf	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	3.9	4.3	4.2	50.8
Irrigation Reqmnt	kaf	25.8	25.8	28.2	27.4	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.9	126.9
Afterbay Rels	kaf	179.5	225.1	181.9	198.7	184.6	171.4	170.2	175.9	175.9	158.9	176.0	149.7	2147.8
Afterbay Rels	cfs	2919	3783	2958	3232	3102	2788	2860	2861	2861	2861	2862	2516	
River Release	kaf	153.7	199.3	153.7	171.3	165.8	171.4	170.2	175.9	175.9	158.9	176.0	148.8	2020.9
River Release	cfs	2500	3349	2500	2786	2786	2788	2860	2861	2861	2861	2862	2501	
Min Release	kaf	153.7	148.8	153.7	153.7	148.8	153.7	148.8	153.7	153.7	138.8	153.7	148.8	1809.9
End-Month Targets	kaf			1020.6			1020.6					822.0		
End-Month Content	kaf	867.4	1000.7	1020.6	1011.8	1011.6	1020.6	987.1	932.9	883.6	849.0	822.0	829.3	
End-Month Elevation	ft	3624.92	3638.39	3640.00	3639.29	3639.28	3640.00	3637.24	3632.26	3626.86	3622.61	3619.01	3620.01	
Net Change Content	kaf	69.5	133.3	19.9	-8.8	-0.2	9.0	-33.5	-54.2	-49.3	-34.6	-27.0	7.3	31.4
Yellowtail Power	2012	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Turbine Release	kaf	175.2	220.9	177.6	194.4	180.4	167.1	166.0	171.6	171.6	155.0	171.7	145.5	2097.0
Generation	gwh	66.419	86.807	71.533	78.434	72.684	67.417	66.720	68.014	66.846	59.493	65.161	55.014	824.542
End-Month Power Cap	mw	267.5	281.6	283.4	282.6	282.6	283.4	280.3	274.9	269.4	265.2	261.6	262.6	
% Max Gen		31	42	33	37	35	31	32	32	31	31	30	27	
Ave kwh/af		379	393	403	403	403	403	402	396	390	384	380	378	393
Upstream Generation	gwh	27.177	30.838	30.640	30.132	26.634	18.300	10.968	11.299	11.239	10.084	11.151	17.776	236.238
Total Generation	gwh	93.596	117.645	102.173	108.566	99.318	85.717	77.688	79.313	78.085	69.577	76.312	72.790	1060.780