

# RECLAMATION

## *Managing Water in the West*

### **BUFFALO BILL RESERVOIR OPERATIONS**

Water Supply Forecasts and Reservoir Operations

Prepared February 1, 2018

**Present Elevation and Storage:** 5373.40 & 485,337 acre-feet

**Actual Inflows (1,000 Acre-Feet):**

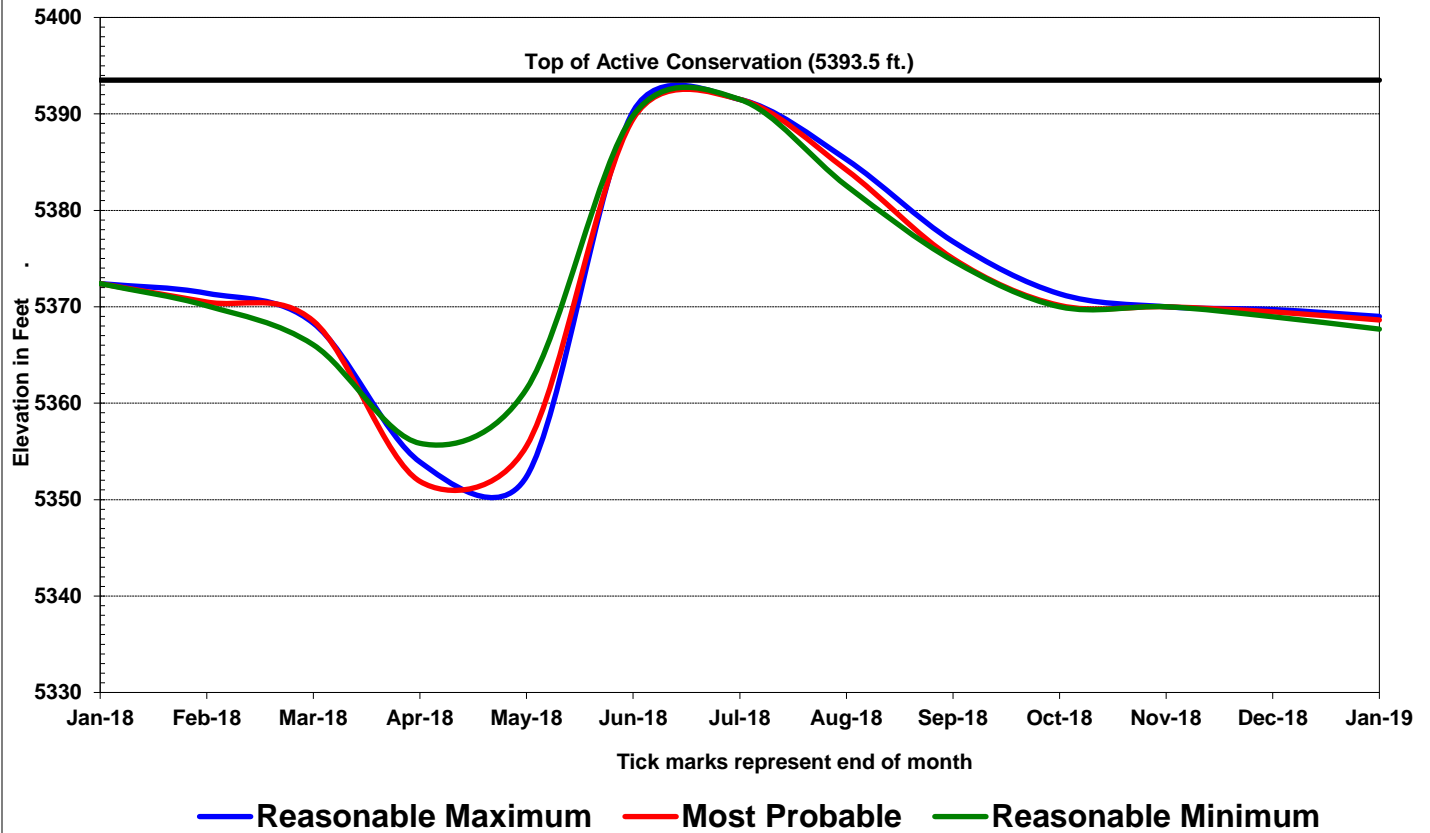
<u>Month</u>	<u>Inflow</u>	<u>Percent of Normal</u>
February	22.1	173
March	66.0	339
April	95.8	215
May	306.2	180
June	576.4	191
July	283.6	177
August	61.2	146
September	55.0	233
October	55.0	214
November	49.6	227
December	33.3	212
January	25.4	172



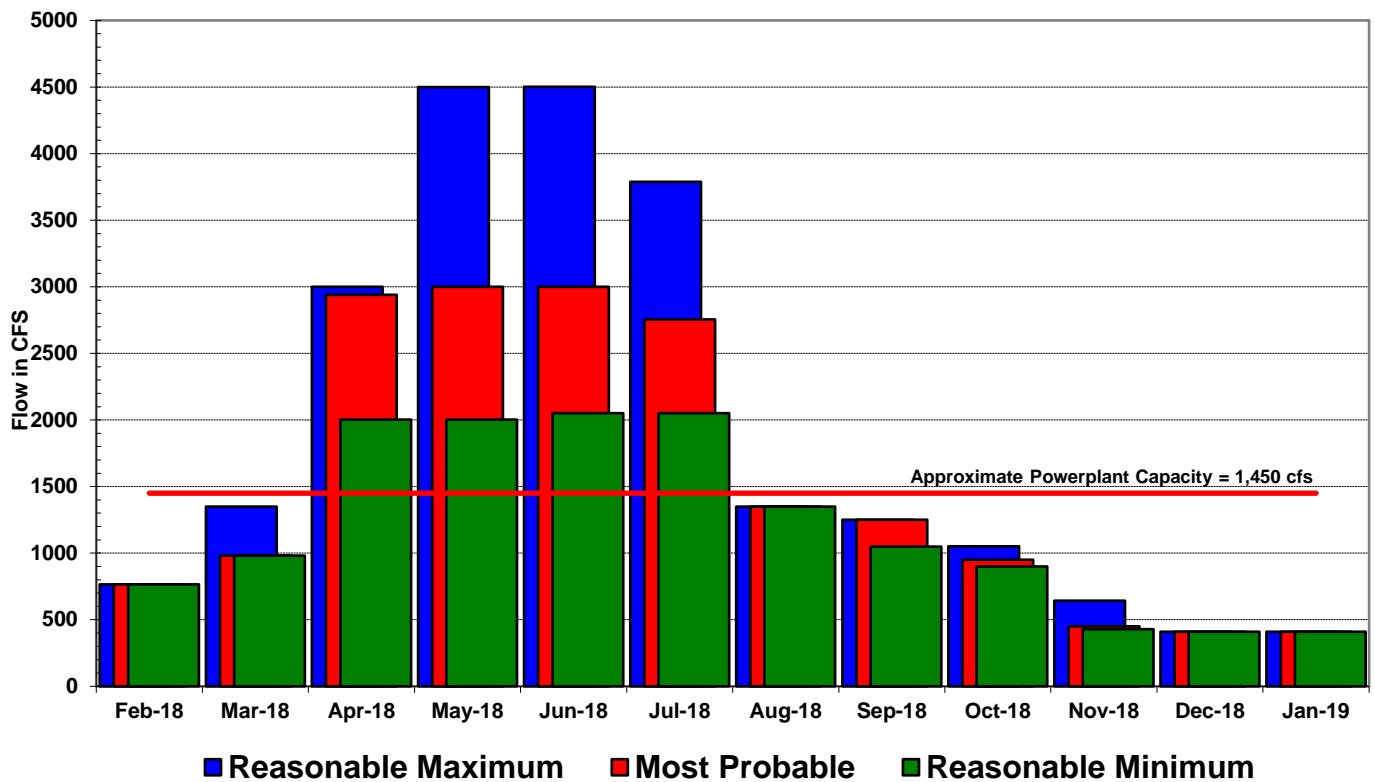
U.S Department of the Interior  
Bureau of Reclamation  
Great Plains Region  
Wyoming Area Office  
Mills, Wyoming

# Buffalo Bill Reservoir

BUFFALO BILL RESERVOIR ELEVATION



SHOSHONE RIVER FLOW BELOW BUFFALO BILL DAM



BBRAOP V1.04 Run: 08-Feb-2018 11:03  
 Based on an expected April - July inflow of 1,000 kaf

BUFFALO BILL RESERVOIR MONTHLY OPERATIONS

Buffalo Bill Reservoir		Initial Cont Elev 481.9 kaf 5372.50 ft				Maximum Cont Elev 643.1 kaf 5393.59 ft				Minimum Cont Elev 41.8 kaf 5259.64 ft			
2018		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Monthly Inflow	kaf	25.0	42.9	70.0	240.0	460.0	230.0	63.4	34.2	27.8	22.5	18.0	15.9
Shoshone Release	kaf	5.6	6.3	12.4	13.2	11.7	11.3	9.5	6.0	6.1	6.0	6.1	6.1
Non-Power Release	kaf	0.0	0.0	95.2	91.9	92.3	84.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Flow Below Dam	kaf	5.6	6.3	107.6	105.1	104.0	95.4	9.5	6.0	6.1	6.0	6.1	6.1
Buffalo Bill Release	kaf	33.6	50.3	51.7	57.2	53.0	51.7	51.2	48.9	30.0	17.2	15.4	15.4
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
Heart Mtn Release	kaf	0.0	0.0	12.1	18.6	18.0	18.6	18.6	15.9	18.6	0.0	0.0	0.0
Heart Mtn Delivery	kaf	0.0	0.0	7.0	36.0	42.0	48.0	41.0	32.0	8.0	0.0	0.0	0.0
Total Outflow	kaf	39.5	56.9	178.7	217.2	217.3	214.0	120.6	103.1	63.0	23.5	21.8	21.8
Bypass/Spill	kaf	0.0	0.0	95.2	91.9	92.3	84.1	0.0	0.0	0.0	0.0	0.0	0.0
End-Month Targets	kaf	467.4	453.4	344.7	367.5	610.2	626.2	569.0	500.1	464.9	463.9	460.1	454.2
End-Month Content	kaf	467.4	453.4	344.7	367.5	610.2	626.2	569.0	500.1	464.9	463.9	460.1	454.2
Est Total Storage	kaf	470.8	456.8	348.1	370.9	613.6	629.6	572.4	503.5	468.3	467.3	463.5	457.6
End-Month Elevation	ft	5370.49	5368.52	5351.89	5355.56	5389.49	5391.50	5384.19	5375.00	5370.14	5370.00	5369.47	5368.63
Net Change Content	kaf	-14.5	-14.0	-108.7	22.8	242.7	16.0	-57.2	-68.9	-35.2	-1.0	-3.8	-5.9
Flow Below BB Pwr	kaf	39.2	56.6	159.3	162.3	157.0	147.1	60.7	54.9	36.1	23.2	21.5	21.5
Flow Below BB Pwr	cfs	706	921	2677	2640	2638	2392	987	923	587	390	350	350
Spring Inflow	kaf	3.3	3.7	3.6	3.6	3.6	3.7	3.7	3.6	3.7	3.6	3.7	3.7
Passing Cody Gage	kaf	42.5	60.3	175.0	184.5	178.6	169.4	83.0	74.4	58.4	26.8	25.2	25.2
Passing Cody Gage	cfs	765	981	2941	3001	3001	2755	1350	1250	950	450	410	410
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Shoshone Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Shoshone Release	kaf	5.6	6.3	12.4	13.2	11.7	11.3	9.5	6.0	6.1	6.0	6.1	6.1
Generation	gwh	1.038	1.158	2.165	2.237	2.160	2.235	1.879	1.150	1.136	1.106	1.123	1.120
Max Generation	gwh	1.369	1.152	2.160	2.232	2.160	2.232	2.232	2.160	2.232	2.160	2.232	2.232
% Max Generation		76	101	100	100	100	100	84	53	51	51	50	50
Ave kwh/af		185	184	175	169	185	198	198	192	186	184	184	184
End-Month Power Cap	mw	2	2	3	3	3	3	3	3	3	3	3	3
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Buffalo Bill Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Buffalo Bill Release	kaf	33.6	50.3	51.7	57.2	53.0	51.7	51.2	48.9	30.0	17.2	15.4	15.4
Generation	gwh	9.124	13.391	12.959	13.114	12.953	13.392	13.391	12.676	8.076	4.712	4.219	4.210
Max Generation	gwh	10.947	13.392	12.960	13.392	12.960	13.392	13.392	12.960	13.392	12.960	13.392	13.392
% Max Generation		83	100	100	98	100	100	100	98	60	36	32	31
Ave kwh/af		272	266	251	229	244	259	262	259	269	274	274	273
End-Month Power Cap	mw	16	18	18	18	18	18	18	18	18	18	18	18
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Spirit Mtn Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Spirit Mtn Release	kaf	0.0	0.0	19.1	34.4	33.3	34.4	34.4	33.3	26.6	0.0	0.0	0.0
Generation	gwh	0.000	0.000	1.630	2.174	2.626	3.226	3.274	3.084	2.694	0.000	0.000	0.000
Max Generation	gwh	0.000	0.000	2.699	3.348	3.240	3.348	3.348	3.240	3.348	3.240	3.348	3.348
% Max Generation		0	0	60	65	81	96	98	95	80	0	0	0
Ave kwh/af				85	63	79	94	95	93	101			
End-Month Power Cap	mw	0	0	2	3	5	5	5	4	4	0	0	0
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Heart Mtn Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Heart Mtn Release	kaf	0.0	0.0	12.1	18.6	18.0	18.6	18.6	15.9	18.6	0.0	0.0	0.0
Generation	gwh	0.000	0.000	2.897	4.453	4.309	4.453	4.453	3.806	4.453	0.000	0.000	0.000
Max Generation	gwh	0.000	0.000	2.894	4.464	4.320	4.464	4.464	4.320	4.464	0.000	0.000	0.000
% Max Generation		0	0	100	100	100	100	100	88	100	0	0	0
Ave kwh/af				239	239	239	239	239	239	239			
End-Month Power Cap	mw	0	0	4	6	6	6	6	6	6	0	0	0
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Total Generation	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Total Generation	gwh	10.162	14.549	19.651	21.978	22.048	23.306	22.997	20.716	16.359	5.818	5.342	5.330
End-month Power Cap	mw	18	20	27	30	32	32	32	31	31	21	21	21

BBRAOP V1.04 Run: 08-Feb-2018 11:03  
 Based on a reasonable minimum April-July inflow of 800 kaf

BUFFALO BILL RESERVOIR MONTHLY OPERATIONS

Buffalo Bill Reservoir		Initial Cont Elev 481.9 kaf 5372.50 ft				Maximum Cont Elev 643.1 kaf 5393.59 ft				Minimum Cont Elev 41.8 kaf 5259.64 ft			
2018		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Monthly Inflow	kaf	22.2	28.4	56.0	192.0	368.0	184.0	50.9	29.2	25.3	22.2	14.4	12.8
Shoshone Release	kaf	5.6	6.1	12.3	12.8	11.5	11.2	9.3	6.0	6.1	6.0	6.1	6.1
Non-Power Release	kaf	0.0	0.0	39.7	30.9	36.6	41.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Flow Below Dam	kaf	5.6	6.1	52.0	43.7	48.1	52.3	9.3	6.0	6.1	6.0	6.1	6.1
Buffalo Bill Release	kaf	33.6	50.5	51.4	57.1	52.3	51.5	51.4	48.2	26.9	15.9	15.4	15.4
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
Heart Mtn Release	kaf	0.0	0.0	12.1	18.6	18.0	18.6	18.6	4.7	18.6	0.0	0.0	0.0
Heart Mtn Delivery	kaf	0.0	0.0	7.0	36.0	42.0	48.0	41.0	28.0	8.0	0.0	0.0	0.0
Total Outflow	kaf	39.5	56.9	122.8	155.7	160.7	170.7	120.6	87.2	59.9	22.2	21.8	21.8
Bypass/Spill	kaf	0.0	0.0	39.7	30.9	36.6	41.1	0.0	0.0	0.0	0.0	0.0	0.0
End-Month Targets	kaf	464.6	436.1	369.3	405.6	612.9	626.2	556.5	498.5	463.9	463.9	456.5	447.5
End-Month Content	kaf	464.6	436.1	369.3	405.6	612.9	626.2	556.5	498.5	463.9	463.9	456.5	447.5
Est Total Storage	kaf	468.0	439.5	372.7	409.0	616.3	629.6	559.9	501.9	467.3	467.3	459.9	450.9
End-Month Elevation	ft	5370.10	5366.05	5355.84	5361.49	5389.83	5391.50	5382.55	5374.78	5370.00	5370.00	5368.96	5367.68
Net Change Content	kaf	-17.3	-28.5	-66.8	36.3	207.3	13.3	-69.7	-58.0	-34.6	0.0	-7.4	-9.0
Flow Below BB Pwr	kaf	39.2	56.6	103.4	100.8	100.4	103.8	60.7	54.2	33.0	21.9	21.5	21.5
Flow Below BB Pwr	cfs	706	921	1738	1639	1687	1688	987	911	537	368	350	350
Spring Inflow	kaf	3.3	3.7	3.6	3.7	3.6	3.7	3.7	3.6	3.7	3.6	3.7	3.7
Passing Cody Gage	kaf	42.5	60.3	119.1	123.1	122.0	126.1	83.0	62.5	55.3	25.5	25.2	25.2
Passing Cody Gage	cfs	765	981	2002	2002	2050	2051	1350	1050	899	429	410	410
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Shoshone Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Shoshone Release	kaf	5.6	6.1	12.3	12.8	11.5	11.2	9.3	6.0	6.1	6.0	6.1	6.1
Generation	gwh	1.038	1.115	2.162	2.229	2.156	2.224	1.834	1.146	1.135	1.106	1.122	1.116
Max Generation	gwh	1.369	1.152	2.160	2.232	2.160	2.232	2.232	2.160	2.232	2.160	2.232	2.232
% Max Generation		76	97	100	100	100	100	82	53	51	51	50	50
Ave kwh/af		185	183	176	174	187	199	197	191	186	184	184	183
End-Month Power Cap	mw	2	2	3	3	3	3	3	3	3	3	3	3
Buffalo Bill Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Buffalo Bill Release	kaf	33.6	50.5	51.4	57.1	52.3	51.5	51.4	48.2	26.9	15.9	15.4	15.4
Generation	gwh	9.119	13.378	12.949	13.383	12.966	13.379	13.401	12.766	7.263	4.358	4.216	4.200
Max Generation	gwh	10.947	13.392	12.960	13.392	12.960	13.392	13.392	12.960	13.392	6.713	9.776	10.312
% Max Generation		83	100	100	100	100	100	100	99	54	65	43	41
Ave kwh/af		271	265	252	234	248	260	261	265	270	274	274	273
End-Month Power Cap	mw	16	18	18	18	18	18	18	18	18	9	13	14
Spirit Mtn Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Spirit Mtn Release	kaf	0.0	0.0	19.1	34.4	33.3	34.4	34.4	32.7	26.6	0.0	0.0	0.0
Generation	gwh	0.000	0.000	1.641	2.332	2.723	3.235	3.245	3.220	2.710	0.000	0.000	0.000
Max Generation	gwh	0.000	0.000	2.699	3.348	3.240	3.348	3.348	3.240	3.348	3.240	3.348	3.348
% Max Generation		0	0	61	70	84	97	97	99	81	0	0	0
Ave kwh/af				86	68	82	94	94	98	102			
End-Month Power Cap	mw	0	0	2	4	5	5	5	4	4	0	0	0
Heart Mtn Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Heart Mtn Release	kaf	0.0	0.0	12.1	18.6	18.0	18.6	18.6	4.7	18.6	0.0	0.0	0.0
Generation	gwh	0.000	0.000	2.897	4.453	4.309	4.453	4.453	1.125	4.453	0.000	0.000	0.000
Max Generation	gwh	0.000	0.000	2.894	4.464	4.320	4.464	4.464	4.320	4.464	0.000	0.000	0.000
% Max Generation		0	0	100	100	100	100	100	26	100	0	0	0
Ave kwh/af				239	239	239	239	239	239	239			
End-Month Power Cap	mw	0	0	4	6	6	6	6	6	6	0	0	0
Total Generation	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Total Generation	gwh	10.157	14.493	19.649	22.397	22.154	23.291	22.933	18.257	15.561	5.464	5.338	5.316
End-month Power Cap	mw	18	20	27	31	32	32	32	31	31	12	16	17

BBRAOP V1.04 Run: 08-Feb-2018 11:03  
 Based on a reasonable maximum April-July inflow of 1,250 kaf

BUFFALO BILL RESERVOIR MONTHLY OPERATIONS

Buffalo Bill Reservoir		Initial Cont Elev 481.9 kaf 5372.50 ft				Maximum Cont Elev 643.1 kaf 5393.59 ft				Minimum Cont Elev 41.8 kaf 5259.64 ft			
2018		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Monthly Inflow	kaf	31.5	57.5	87.5	300.0	575.0	287.5	71.8	39.8	29.6	25.3	19.7	16.8
Shoshone Release	kaf	5.6	6.3	12.3	13.3	11.8	11.3	9.6	6.0	6.2	6.0	6.2	6.2
Non-Power Release	kaf	0.0	22.7	99.0	183.9	181.0	147.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Flow Below Dam	kaf	5.6	29.0	111.3	197.2	192.8	158.9	9.6	6.0	6.2	6.0	6.2	6.2
Buffalo Bill Release	kaf	33.6	50.3	51.5	57.2	53.4	51.8	51.1	48.7	36.1	28.6	15.3	15.3
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
Heart Mtn Release	kaf	0.0	0.0	12.1	18.6	18.0	18.6	18.6	16.1	18.6	0.0	0.0	0.0
Heart Mtn Delivery	kaf	0.0	0.0	7.0	36.0	42.0	48.0	41.0	33.0	8.0	0.0	0.0	0.0
Total Outflow	kaf	39.5	79.6	182.2	309.3	306.5	277.6	120.6	104.1	69.2	34.9	21.8	21.8
Bypass/Spill	kaf	0.0	22.7	99.0	183.9	181.0	147.6	0.0	0.0	0.0	0.0	0.0	0.0
End-Month Targets	kaf	473.9	451.8	357.1	347.8	616.3	626.2	577.4	513.1	473.5	463.9	461.8	456.8
End-Month Content	kaf	473.9	451.8	357.1	347.8	616.3	626.2	577.4	513.1	473.5	463.9	461.8	456.8
Est Total Storage	kaf	477.3	455.2	360.5	351.2	619.7	629.6	580.8	516.5	476.9	467.3	465.2	460.2
End-Month Elevation	ft	5371.40	5368.29	5353.90	5352.40	5390.26	5391.50	5385.28	5376.76	5371.34	5370.00	5369.71	5369.00
Net Change Content	kaf	-8.0	-22.1	-94.7	-9.3	268.5	9.9	-48.8	-64.3	-39.6	-9.6	-2.1	-5.0
Flow Below BB Pwr	kaf	39.2	79.3	162.8	254.4	246.2	210.7	60.7	54.7	42.3	34.6	21.5	21.5
Flow Below BB Pwr	cfs	706	1290	2736	4137	4138	3427	987	919	688	581	350	350
Spring Inflow	kaf	3.3	3.7	3.6	3.7	3.6	3.7	3.7	3.6	3.7	3.6	3.7	3.7
Passing Cody Gage	kaf	42.5	83.0	178.5	276.7	267.8	233.0	83.0	74.4	64.6	38.2	25.2	25.2
Passing Cody Gage	cfs	765	1350	3000	4500	4501	3789	1350	1250	1051	642	410	410
Shoshone Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Shoshone Release	kaf	5.6	6.3	12.3	13.3	11.8	11.3	9.6	6.0	6.2	6.0	6.2	6.2
Generation	gwh	1.040	1.153	2.155	2.237	2.160	2.232	1.903	1.157	1.162	1.109	1.142	1.139
Max Generation	gwh	1.369	1.152	2.160	2.232	2.160	2.232	2.232	2.160	2.232	2.160	2.232	2.232
% Max Generation		76	100	100	100	100	100	85	54	52	51	51	51
Ave kwh/af		186	183	175	168	183	198	198	193	187	185	184	184
End-Month Power Cap	mw	2	2	3	3	3	3	3	3	3	3	3	3
Buffalo Bill Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Buffalo Bill Release	kaf	33.6	50.3	51.5	57.2	53.4	51.8	51.1	48.7	36.1	28.6	15.3	15.3
Generation	gwh	9.138	13.388	12.949	13.039	12.952	13.401	13.392	12.664	9.692	7.794	4.193	4.187
Max Generation	gwh	10.947	13.392	12.960	13.392	12.960	13.392	13.392	12.960	13.392	12.960	13.392	13.392
% Max Generation		83	100	100	97	100	100	100	98	72	60	31	31
Ave kwh/af		272	266	251	228	243	259	262	260	268	273	274	274
End-Month Power Cap	mw	16	18	18	18	18	18	18	18	18	18	18	18
Spirit Mtn Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Spirit Mtn Release	kaf	0.0	0.0	19.1	34.4	33.3	34.4	34.4	33.3	26.6	0.0	0.0	0.0
Generation	gwh	0.000	0.000	1.646	2.155	2.590	3.236	3.293	3.113	2.687	0.000	0.000	0.000
Max Generation	gwh	0.000	0.000	2.699	3.348	3.240	3.348	3.348	3.240	3.348	3.240	3.348	3.348
% Max Generation		0	0	61	64	80	97	98	96	80	0	0	0
Ave kwh/af				86	63	78	94	96	93	101			
End-Month Power Cap	mw	0	0	2	3	5	5	5	4	4	0	0	0
Heart Mtn Power	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Heart Mtn Release	kaf	0.0	0.0	12.1	18.6	18.0	18.6	18.6	16.1	18.6	0.0	0.0	0.0
Generation	gwh	0.000	0.000	2.897	4.453	4.309	4.453	4.453	3.854	4.453	0.000	0.000	0.000
Max Generation	gwh	0.000	0.000	2.894	4.464	4.320	4.464	4.464	4.320	4.464	0.000	0.000	0.000
% Max Generation		0	0	100	100	100	100	100	89	100	0	0	0
Ave kwh/af				239	239	239	239	239	239	239			
End-Month Power Cap	mw	0	0	4	6	6	6	6	6	6	0	0	0
Total Generation	2018	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Total Generation	gwh	10.178	14.541	19.647	21.884	22.011	23.322	23.041	20.788	17.994	8.903	5.335	5.326
End-month Power Cap	mw	18	20	27	30	32	32	32	31	31	21	21	21