

APPENDIX J STREAMFLOW ADVISORY TOOL

Spreadsheet Snapshot

1	Reservoir is down ? inches	-1.5
2	Reservoir level	40.1
3	MG remaining	160.5
4	Date	7/8/2019
5	7 day pumping average	1.133
6	Projected pumping	0.744
7	Changes +/-	
8	Precipitation	23
9	Streamflow	18
10	Conservation	1
11	Days to water ban	124
12	Days to streamflow cutoff	195
13	Days in reservoir	223
14	Date Calculation	99
15	Streamflow is:	ON
16	Water Ban?	NO

Annotated Explanation of Spreadsheet Cells

Highlighted cells are data that is entered – all other cells are calculation cells.

Row #	Data	Explanation
1	Reservoir is down ? inches	[entered]
2	Reservoir level in feet	Conversion for row 3 formula (40-([Reservoir Inches 1]/12)) (see note)
3	MG remaining	Best fit formula to calculate volume of reservoir based on level (see note) - (0.9582*([Reservoir Feet 2]^2))- (51.907*[Reservoir Feet 2])+700.57
4	Date	[entered]
5	7 day pumping average	[entered]
6	Projected pumping	A projection of average daily pumping assuming the current 7-day average [5] for the following week and then the 5- year average projected pumping for one week after the current date until October 15 th , using a lookup table. (((7DayAveragePumping 5]*7)+((LOOKUP((Date 4)+7), [date column], [pumping rate column]))*(Days Until Oct 15 th 14]-7)))/Days Until October 15 th 14]
7	Changes +/-	[entered]
8	Precipitation	Anticipated 20 th percentile precipitation (MG) based on WEAP period of record, using a lookup table. (LOOKUP([Date 4],[date column],[precipitation column]))
9	Streamflow	Anticipated streamflow released (MG) based on Interim Operational Plan, using a lookup table. (LOOKUP([Date 4],[date column],[precipitation column]))
10	Conservation	Correction factor for conservation, where rate of decline is 6% lower if the water ban is in place (i.e. reservoir level is more than 48 inches below the spillway). (IF([Reservoir Inches 1]<48,1,0.94))
11	Days remaining to water ban	Calculates the number of days until the water ban is reached (can't be negative). (MAX(0,((MG Remaining 3]+[Precipitation 8] -[Streamflow 9])-[Volume at Ban Trigger 73.7])/(((Projected Pumping 6] + [Changes 7])*[Conservation Factor 10])))
12	Days remaining to streamflow cutoff	Calculates the number of days until the streamflow cutoff is reached (can't be negative). (MAX(0,((MG Remaining 3]+[Precipitation 8] -[Streamflow 9])-[Volume at SF Cutoff 20.7])/(((Projected Pumping 6] + [Changes 7])*[Conservation Factor 10])))

Row #	Data	Explanation
13	Days remaining in reservoir	Calculates the number of days until the reservoir is “empty” (can’t be negative). (MAX(0,((([MG Remaining 3]+[Precipitation 8] –[Streamflow 9]))/((([Projected Pumping 6] + [Changes 7])*[Conservation Factor 10])))))
14	Date Calculation	Days Until October 15 th ([October 15 th] - [Date 4])
15	Streamflow is:	Final advisory on streamflow (on or off). If there are more days until October 15 th than are projected to remain in the reservoir, there are zero days projected to the streamflow cutoff, or the streamflow trigger has been reached, turn off streamflow. (IF((OR([Days Until October 15 th 14]>[Days Remaining in Reservoir 13], [Days Remaining to Streamflow Cutoff 12] <0.01, [Reservoir Inches 1]>=84)), "OFF", "ON"))
16	Water Ban?	Final advisory on water ban (yes or no). If there are more days until October 15 th than are projected to remain in the reservoir, there are zero days projected to the water ban trigger, or the water ban trigger has been reached, enact a water ban. (IF((OR([Days Until October 15 th 14]>[Days Remaining in Reservoir 13], [Days Remaining to Water Ban 11] <0.01, [Reservoir Inches 1]>=48)), "YES", "NO"))

Note: Formula and reservoir levels are based on a reference Reservoir Dam spillway crest El. 40.0 ft. Reference spillway crest El. 40.0 ft equals El. 38.9 ft NAVD 88.

Results Table and Graph, 4/17/19-7/8/19

InDwn	-4	-5	-3.5	-3	-2	-3.5	-2	-2.5	-2	-2	-1.5
LvlFt	40.3	40.4	40.3	40.3	40.2	40.3	40.2	40.2	40.2	40.2	40.1
MGrmn	165.8	167.9	164.7	163.7	161.6	164.7	161.6	162.6	161.6	161.6	160.5
Date	4/17/19	4/29/19	5/6/19	5/15/19	5/23/19	5/28/19	6/10/19	6/19/19	6/26/19	7/3/19	7/8/19
7 day sfc	0.380	0.466	0.480	0.554	0.900	0.789	0.887	0.776	0.801	0.901	1.133
ProjPump	0.687	0.705	0.713	0.726	0.749	0.744	0.758	0.755	0.746	0.738	0.744
Chgs +/-											
Precip	133	110	90	73	61	54	39	32	27	24	23
SF	92	75	67	52	38	30	22	20	19	18	18
Conserve	1	1	1	1	1	1	1	1	1	1	1
WBDays	193	183	160	154	148	155	139	133	128	127	124
SFDays	270	258	234	227	219	226	209	203	199	199	195
ResDays	301	288	263	255	246	254	236	230	227	227	223
Until10.15	181	169	162	153	145	140	127	118	111	104	99
SF is	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
WB?	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

