Estimated Evaporation Water Loss

For The Proposed 6.7 Acre

Pond At Kidder Creek Camp

Greenview, Ca

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Methodology

This analysis is derived from data and information included in "Evaporation from Water Surfaces in California" Department of Water Resources Bulletin 73-79 November 1979. This is the most site specific and accurate data known to be available for estimating evaporation at the site of the proposed pond. Pan evaporation data collected at the Fort Jones Ranger Station for the months of May – September recorded in 1955 is available and data collected at Montague for the months of October – April recorded from 1959-1964 is available.

Calculated water loss from evaporation for the 6.7 acre proposed pond is then combined with average normal rainfall data from US Climate Data to produce an estimated net water loss. One cubic foot per second water right is also considered and a percentage of estimated water loss is compared to this volume of water.

Water Evaporation Data

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Fort Jones								5.5"	10.1"	10.9"	10.4"	3.8"
Montague	3.1"	0.9"	0.6"	0.5"	1.7"	2.8"	5.3"					
Adjusted with pan coefficient (x 0.76*)	2.4"	0.7"	0.5"	0.4"	1.3"	2.1"	4.0"	4.2"	7.7"	8.3"	7.9"	3.0"

*From "Evaporation from Water Surfaces in California" Bulletin 73-79

Rainfall Data

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Etna	2.91"	6.38"	9.71"	8.35"	4.61"	4.65"	2.2"	2.1"	1.1"	0.35"	0.47"	0.67"

Net Monthly Water Loss

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Adj Evap – Rainfall	-0.5"	-5.7"	-9.2	-7.9"	-3.3"	-2.6"	1.8"	2.1"	6.6"	8.0"	7.4"	2.3"

Water Loss Calculation

Yearly water balance: (-0.5)+(-5.7)+(-9.2)+(-7.9)+(-3.3)+(-2.6)+(1.8)+(2.1)+(6.6)+(8.0)+(7.4)+(2.3)= -1.0" (1.0" more water accumulation in pond from rain as an average than total yearly estimated evaporation)

Summer months (June – September) balance: (6.6")+ (8.0")+(7.4")+(2.3")= 24.3"

For the 24.3" of evaporation water loss in the summer months, comparison to the 1cfs water right calculation is as follows:

6.7 Acres X (24.3"/12" per foot) = 13.6 Acre Feet of water loss from June through September

(1 CFS X 122 Days X 24 Hrs per day X 60 Min per hour X 60 Sec per Min) / 43,560 SQ Ft per Acre = 242 Acre Feet of water right from June through September

13.6 Acre Feet of water loss / 242 Acre Feet of water right = 5.6 percent of total water right evaporation from June to September

Conclusion

The resultant yearly water loss as a result of addition of the pond is estimated to be less than or equal to the annual rainfall captured by the pond. Surface inflow from adjacent down sloping terrain was not added so this analysis is conservative. The location of the pond on the Easterly side of the adjacent hill allowing some late afternoon reduced sun exposure and inflow of cool water from Barker Ditch are likely to result in less evaporation than historic adjusted pan evaporation data also making the calculation conservative. Results also depend on rainfall that meets the average annual rainfall.

Comparison of estimated evaporation loss only during the summer months to 1 cubic feet per second water right from Kidder Creek shows estimated evaporation to be 5.6 percent of water right for the months of June through September.