

MEMO

TO: File 65-13453

FROM: CPalmer

DATE: February 17, 2012

RE: Licensing Review Memo + ET calc and Seepage worksheet

PD: The point of diversion is an unnamed stream that enters the pond from the north side of the pond. There is not a "diversion to storage" component on this right since the pond is within the unnamed stream's channel. There is an outlet on the pond that goes back into the stream channel and then eventually ends up in the Payette River.

POU: The place of use consists of a pond known locally as Lake Douglas. The size of the pond was estimated to be 16.2 af based on preliminary figures.

OVERLAPS AND VOLUME: Water right 65-7007 covers 5.6 af of the pond. When the pond was originally constructed the pond was estimated to cover 0.94 acres. This means that right 65-7007 authorized the following pond:

D= deepest point in the pond in feet

0.6= factor when accounting for a pond with a sloped bottom

$$0.94 \text{ acres} \times D \times 0.6 = 5.6 \text{ af}$$

$$D = 10 \text{ ft}$$

The pond was deepened to 14 ft and expanded to cover 1.3 acres according to my measurement using aerial imagery. The pond that was developed within the development period has a capacity of:

$$1.3 \text{ acres} \times 14 \text{ ft} \times 0.6 = 10.9 \text{ af total} - 5.6 \text{ af under 65-7007} = 5.3 \text{ af authorized under this right.}$$

ET accounts for 1.4 af and the difference of 3.9 af can be considered for losses through seepage.



ET_{Idaho} 2009: Evapotranspiration and Consumptive Irrigation Water Requirements for Idaho

Please send suggestions for improving this site to robison@kimberly.uidaho.edu Copyright 2010, University of Idaho.

McCall (NWS --105708)

Statistics based on thirty

For a different land cover or crop click on the above link.

You can highlight this table and copy via the clipboard to a Microsoft Excel or OpenOffice spreadsheet to plot or otherwise work with this data.

Open water - shallow systems (ponds, streams)															
Precipitation Deficit (Click here for a graph)															
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Growing Season ^a	Non Growing Season ^b	Annual
				30	31	30	31	30	31	31	30				
Mean	x mm/day												mm		
Monthly ^c	-2.13	-1.78	-0.91	0.34	0.96	2.02	3.34	2.76	1.43	0.18	-2.08	-2.45	53	0	53
15-Day Moving Average ^d	-2.04	-2.18	-0.88	10.2	29.8	60.6	105	82.8	44.3	5.6	-1.98	-2.26	→ (336.8 mm / 25.4) 12 = 1.1 ab / acre		
7-Day Moving Average ^e	-2.08	-1.98	-0.95	0.31	0.95	2.02	3.42	2.68	1.31	0.20	-2.07	-2.34			
3-Day Moving Average ^f	-2.12	-1.81	-0.91	0.33	0.94	1.99	3.37	2.75	1.40	0.19	-2.10	-2.42			
Standard Deviation	mm/day												mm		
Monthly	1.69	1.53	1.53	1.09	1.97	1.12	1.17	1.47	1.38	1.65	1.34	2.01	169	0	169
15-Day Moving Average	1.73	1.97	1.50	1.35	1.93	1.44	1.09	1.49	1.83	1.48	1.69	1.89			
7-Day Moving Average	2.45	2.60	2.06	1.95	2.44	2.19	1.47	1.90	2.31	2.14	2.37	2.68			
3-Day Moving Average	3.17	3.43	2.86	2.73	3.26	3.09	2.17	2.40	2.91	2.86	3.20	3.70			
20% Exceedance	mm/day												mm		
Monthly	-0.85	-0.58	-0.15	0.98	1.99	3.10	4.19	3.64	2.58	1.10	-1.07	-1.53	185	0	185
15-Day Moving Average	0.27	0.39	1.02	2.04	3.46	4.02	4.63	4.06	3.08	1.92	0.24	0.01			
7-Day Moving Average	0.51	1.07	1.65	3.12	4.49	4.65	4.84	4.35	3.45	2.31	0.75	0.27			
3-Day Moving Average	0.60	1.25	2.11	3.50	4.78	5.00	5.07	4.58	3.73	2.55	0.99	0.34			

FILE NUMBER -----
REVIEWER -----
DATE -----

INPUTS

NOTES/RESULTS

FORMULAS

POND

SURFACE AREA (SQFT) ----- 56628

SEEPAGE RATE (FT/DAY) ----- 0.10

SUGGESTED CONVERT TO GPD ----- 42358 GPD
0 = NATURALLY FILLED FROM GW, OR LINED
0.5 = CLAY SOILS
1.5 = LOAMS
3.0 = GRAVELS

FORMULA: SA * SEEPAGE LOSS = POND SEEPAGE (CUFT/D)
CONVERSION: 1 CUFT = 7.48 G
NOTE: ASSUMES CONTINUOUS REPLACEMENT RATE

TOTAL Seepage Loss (AFA) ----- 47.4 AFA

TOTAL = FILL RATE + EVAP + SEEPAGE + FLOW THROUGH