

MEMO

TO: File 1-7092

FROM: CPadilla

DATE: February 8, 2011

RE: Licensing Review Memo

Time Line:

Application for Permit Received: 7/15/87

Permit Approved: 9/14/87

Proof of Beneficial Use Received: 9/13/88

Field Exam Conducted: 1/26/95

Conditioning: Here are the conditions I recommend for the license

Comment	Conditions for License 1-7092
Condition will carry from permit. This right just authorizes flow through.	Use of water under this permit shall be non-consumptive
	Watermaster condition for Water District 01 (Snake River)
No storage is authorized under this right, storage is covered by existing rights.	This right authorizes the diversion for the flow of water through the reservoir.
The POU is referred as Jensen Grove in overlapping WR files.	The place of use is also known as Jensen Grove Lake.

* Note: No mitigation is required for this right since 1-181C is covering CU.

POU Overlap Analysis: Two rights cover the place of use for this right, aka Jensen Grove Lake, as follows:

Right	Priority	Source	Use	Rate (cfs)	Storage Volume (af)
1-181C	6/16/1900	Snake River (2PDs)	Irrigation, Irrigation Storage, Irrigation from Storage, Diversion to Storage, & Recreation Storage	46.0	2,266.8
1-4007	6/01/1962	Snake River	Diversion to Storage & Recreation Storage	2.8	464.0

PD Summary: This right authorizes one point of diversion and the following rights divert from the same PD: 1-181C and 1-4007. The exact capacity of the PD is unknown, but the field examiner estimated that the average inflow from the PD is ~30 cfs. Since the exact capacity is unknown, no PD limiting conditions will be added to the license.

Season of Use: The season of use is meant to reflect the irrigation season. Since the permit was issued, the season has changed from 4/15-10/1 to 4/1-10/31. The new season of use will be used on the license.

Volume and Diversion Rate: The permit was approved for Recreation Storage and Recreation uses. Transfer #72385 changed right 1-181C from irrigation uses to storage uses at Jensen Grove Lake. The transfer was approved in 2007 and covers all water for the storage, evaporation, and seepage at Jensen Grove. This is based on the following calculations:

Storage Capacity Found at the FE of 1-7092:	858 afa
Evaporation at the Lake:	67.1 afa*
<u>Seepage at the Lake:</u>	<u>1,121.4 afa*</u>
	Total 2,046.5 afa

*see attachments for calculations

Current Rights Cover Recreation Storage as Follows:

Right 1-181C Covers	2266.80 af (1100af pond capacity, 186af evap, 980.8af seepage)
<u>Right 1-4007 Covers</u>	<u>464 af</u>
Total	2,730.8 afa

Because the existing water rights cover the lake in full, I am not recommending any storage under this license. However, there is a flow through that should be covered under this right. The permitted rate for recreation use is 2.8 cfs. There are 214 days that that amount can be diverted, so the volume is $2.8 \text{ cfs} \times 1.9835 \times 214 = 1188.5 \text{ afa}$.

Amendment Needed?: Yes, the PD and POU have been developed differently than permitted.

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

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Blackfoot (NWS --100915)

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.

**Negative values not used in annual total of evap-precip.*

Open water - deep systems (lakes, reservoirs)															
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
Mean	mm/day												mm		
Monthly ^c	~~0.18~~	~~0.00~~	0.30	0.70	1.01	1.26	1.84	1.71	1.23	1.39	0.51	~~0.18~~	293	0	293
15-Day Moving Average ^d	0.23	0.01	0.23	0.77	0.92	1.28	1.84	1.78	1.21	1.39	0.43	0.10	→ 304.2 mm or 1.21 in		
7-Day Moving Average ^e	0.19	0.03	0.26	0.72	0.93	1.22	1.85	1.74	1.23	1.38	0.46	0.16	1.21 x 73 acres =		
3-Day Moving Average ^f	0.18	0.02	0.29	0.71	0.99	1.27	1.84	1.71	1.25	1.39	0.50	0.17	73 afa or 67.1 during the irrigation season		
Standard Deviation	mm/day												mm		
Monthly	0.96	0.62	0.77	0.93	1.18	1.12	0.83	0.68	0.80	1.12	0.52	0.97	106	0	106
15-Day Moving Average	0.99	0.83	0.79	1.14	1.19	1.50	0.85	0.70	0.90	1.11	0.70	0.76			
7-Day Moving Average	1.25	1.09	1.07	1.54	1.76	2.05	1.09	0.98	1.24	1.53	1.03	1.08			
3-Day Moving Average	1.69	1.51	1.51	2.17	2.37	2.63	1.55	1.40	1.80	2.07	1.47	1.61			
20% Exceedance	mm/day												mm		
Monthly	0.27	0.54	0.62	1.38	1.72	2.23	2.33	2.12	1.96	2.06	0.92	0.44	371	0	371
15-Day Moving Average	0.70	0.88	1.30	2.11	2.18	2.68	2.53	2.42	2.09	2.73	1.42	0.74			
7-Day Moving Average	0.91	1.15	1.68	2.56	2.81	3.13	2.66	2.59	2.60	3.11	1.77	1.04			
3-Day Moving Average	1.10	1.44	1.94	2.77	3.21	3.40	2.99	2.86	2.82	3.29	2.09	1.18			

Seepage

Seepage Notes

There is a water balance that can be expressed as:

$$\Delta s = Q_{in} + P - ET - S$$

Where

Δs = Change in storage (the amount flowing out is unknown, but in early spring I assume there is little to no outflow but once the reservoir fills, it's probable that inflow = outflow, for the purpose in finding seepage, I will use the worst case scenario)

Q_{in} = Flow going into the pond (calculate in afa) $Q_{in} = 2.8 \text{ cfs or } 1188.5 \text{ af}$

P = precipitation
 ET = Deep Lake System
 $\rightarrow 73 \text{ afa} - 9.3\text{mm} - 15.3\text{mm} = 67.1^*$

S = seepage

$$S = Q_{in} + P - ET - \Delta s$$

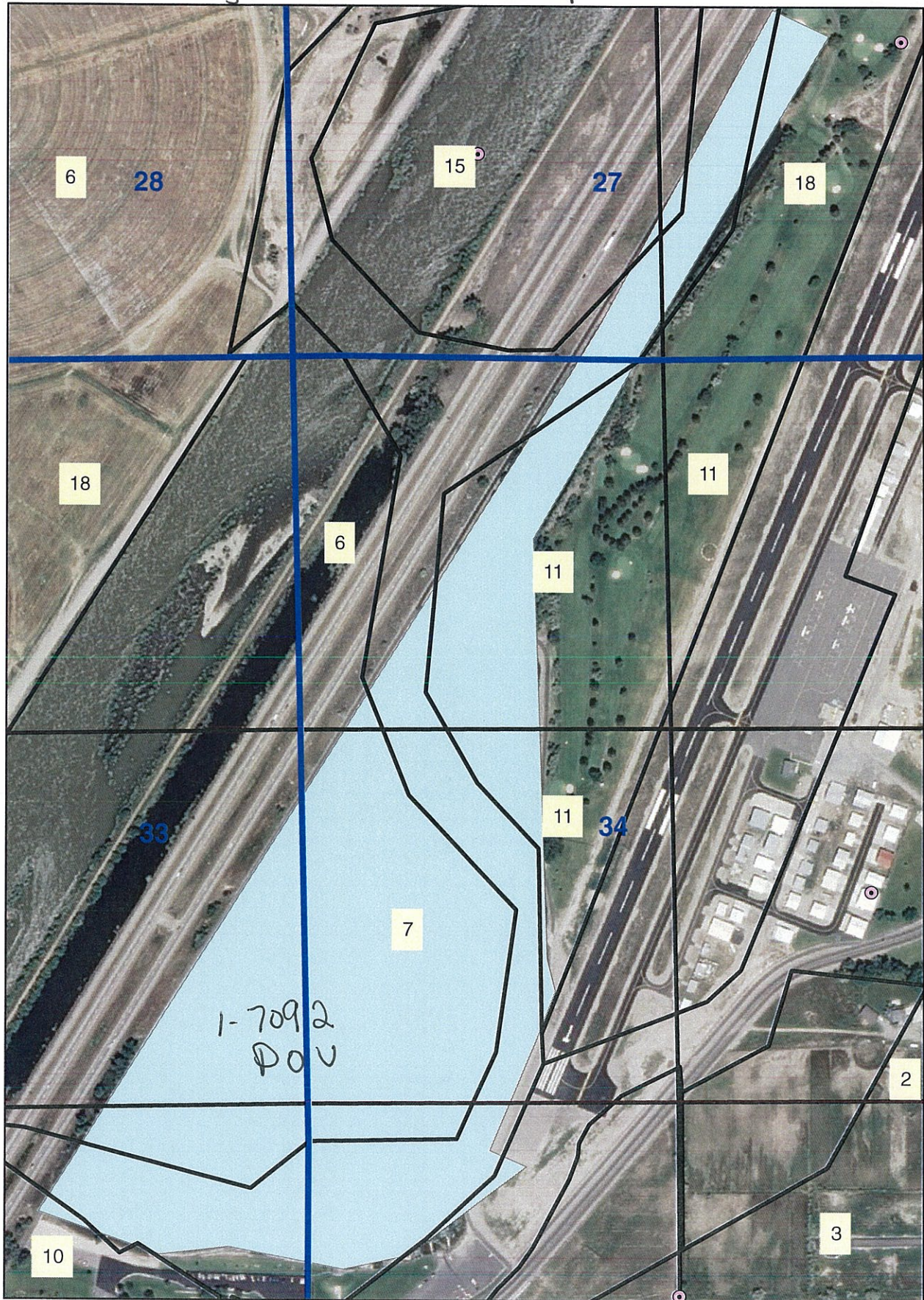
*Note that the P and ET have been calculated to be 73 afa for the entire year from the ET Idaho precip. deficit spreadsheet. I will deduct Jan, Feb, March, Nov, and Dec to account for the season of use only.

Reservoir begins to fill in April and takes ~14 days to fill or less based on FE

$S = 1188.5 - 67.1\text{afa} - 0$ or 1121.4 af of seepage between April to the end of the irrigation season, November

Waiver: This is a very rough calculation only to illustrate that in the worst case scenario, seepage has been accounted for in existing water rights 1-181C and 1-4007.

The [15] indicate Gov Lots.
Since the Gov. lots are erratically placed, I will not add
Gov lot designations to the POV. CP



Black lines = Gov Lots

* Since Gov. Lots are irregularly
dispersed, Gov. Lot designations will
not be made on the license.