

MEMO

TO: File 65-13265

FROM: CPadilla

DATE: January 21, 2011

RE: Licensing Review Memo

Time Line:

Application for Permit Received: 7/30/90

Permit Approved: 9/27/90

Proof of Beneficial Use Received: 8/5/92

Field Exam Conducted: 6/28/93

Conditioning:

Comment	Water Permit Condition Report
Update in license to R05 w/ WD #65	005 Use of water under this right is subject to control by the watermaster of State Water District No. &DISTRICT.
Drop from license. The license will include fire protection use which inherently is consumptive.	027 Use of water under this right shall be non-consumptive.
Issue license with these uses as part of the beneficial use description.	Use also includes aesthetic and fire protection.
Doesn't carry to license.	026 Permit holder shall commence the excavation or construction of diverting works within one year of the date this permit is issued and shall proceed diligently until the project is complete.

POU Overlap Analysis: There are no other rights that cover the pond.

PD Summary: The water is diverted through a ditch that flows into the pond and back out to the river. There is a dam on the pond to insure a certain level on the pond. The permit describes two PDs and two sources (the Payette and a pond) but there is only one source. The water from the Payette is being diverted and used and nothing is being diverted from the pond. The license should be issued with one source and one point of diversion from the South Fork of the Payette.

Location	Rights that Use PD	Uses
9N4E Sec 27 Gov. Lot 5	65-13265	*Aesthetic, Recreation, and Fire Protection

*Although the permit was not issued with aesthetic and fire protection uses, the permit's conditions of approval allowed for the uses. The beneficial uses on the license will include aesthetic, fire, and recreation.

Volume and Diversion Rate:

Volume for the storage of the pond should be based on the following elements:

Evaporation = 8.9 afa (see ET Idaho attachments)

Seepage = 143.2 afa¹

Pond Size = 7 afa per field examiner

Total 159.1 afa or the permitted volume, whichever is less

Limited by permitted volume for storage of 4 afa

Volume for the flow through is based on the following information:

The field examiner took two measurements at the PD to determine diversion rate. At the end of June he measured 1.4 cfs and at the end of July he measured 0.4 cfs. I compared monthly statistics for discharge at the SF Payette (USGS 13235000) for months June and July against the measured diversion rate at the PD in 1992. I plotted the data and used the linear function to see how much could have been diverted in other months so I could calculate an annual volume. This type of analysis should work since there is not a pump in the river and the water is diverted to the ditch when the river is at certain levels.

Ultimately I used the *mean of monthly discharge data* to calculate the volume in order to reflect activity during the development period. There is 6 months where the right holder could divert 0.20 cfs. The other months they can divert anywhere from 0-0.06 cfs. I took the amount they could divert, up to 0.20 cfs, and multiplied that by the number of days which came to 80.3 afa (see attached tables).

Limited by the estimated rate that was diverted or 80.3 afa (note that fire protection does not get a volumetric limit). Since 80.3 afa is the maximum volume that can be diverted the 4 afa for the storage component will be subtracted for a total of 76.3 afa.

The diversion rate will be based on the field examiner's findings.

Amendment Needed?: No. The license includes additional beneficial uses that were not on the permit. However, the permit did include the uses in the conditions. No amendment is needed since the uses were authorized through the permit.

¹ $\Delta S = Q_{in} + P - ET - S$ where:

ΔS = Change in storage (if there is no outflow you can eliminate this from the equation—in this case the field examiner found no outflow when the $Q < 0.4$ cfs)

Q_{in} = Flow going into the pond

P = precipitation

ET = actual evapo-transpiration

S = seepage

$S = Q_{in} + P - ET$ or $S = 144.8 \text{ afa} + 7.4 - 9 = 143.2 \text{ afa}$



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USGS Surface-Water Monthly Statistics for the Nation

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USGS 13235000 SOUTH FORK PAYETTE RIVER AT LOWMAN, ID

Available data for this site

Time-series: Monthly statistics

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Boise County, Idaho Hydrologic Unit Code 17050120 Latitude 44°05'07", Longitude 115°37'20" NAD83 Drainage area 446 square miles Gage datum 3,790.00 feet above sea level NGVD29	Output formats HTML table of all data Tab-separated data Reselect output format
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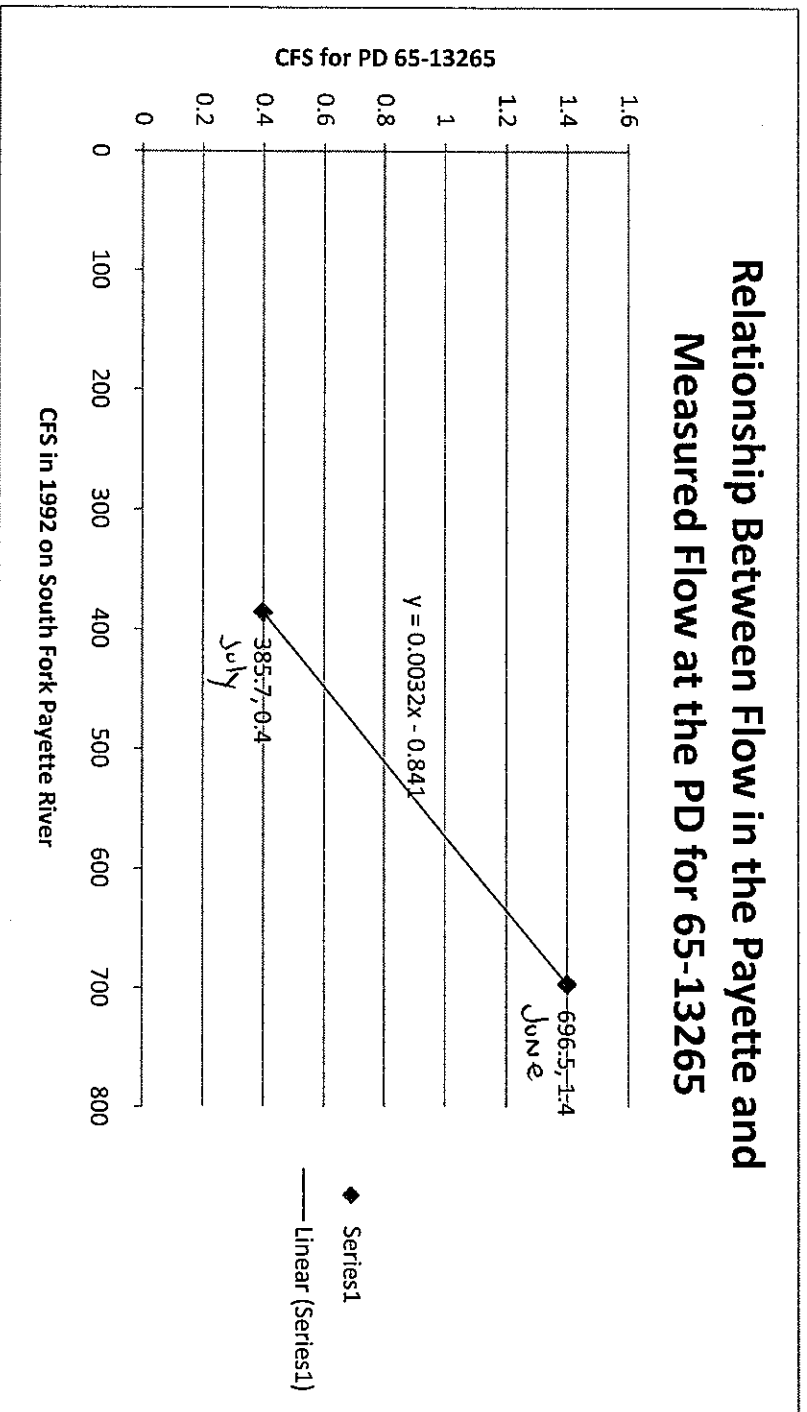
00060, Discharge, cubic feet per second,												
YEAR	Monthly mean in cfs (Calculation Period: 1990-01-01 -> 1992-12-30)											
	Period-of-record for statistical calculation restricted by user											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1990	257.6	244.2	402.6	1,150	1,300	1,669	796.8	418.9	314.0	310.0	283.3	220.5
1991	243.1	269.2	326.7	516.2	1,087	1,621	727.5	350.5	275.8	237.2	302.7	266.9
1992	235.6	295.8	474.3	781.6	1,314	696.5	385.7	257.3	244.5	252.5	261.1	232.5
Mean of monthly Discharge	245	270	401	816	1,230	1,330	637	342	278	267	282	240
** No Incomplete data have been used for statistical calculation												

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Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly Mean in CFS of SF												
Payette in 1992	235.6	295.8	474.3	781.6	1314	696.5	385.7	257.3	244.5	252.5	261.1	232.5
Measured Rate at 65-13265						1.4	0.4					

Relationship Between Flow in the Payette and Measured Flow at the PD for 65-13265



Month (1992)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Possible Rate Diverted by 65-13265	0.00	0.11	0.68	1.66	3.36	1.39	0.39	0.00	0.00	0.00	0.00	0.00
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Payette for 1990-1992	245	270	401	816	1230	1330	637	342	278	267	282	240
Possible Rate Diverted for 65-13265	0.00	0.02	0.44	1.77	3.10	3.42	1.20	0.25	0.05	0.01	0.06	0.00

$$\begin{aligned}
 &0.20 \text{ cfs} \times 1.9835 \times 181 \text{ days} = 71.8 \text{ af} \\
 &0.02 \times 29 \text{ days} = 1.2 \text{ af} \\
 &0.05 \times 31 \text{ days} = 3.1 \text{ af} \\
 &0.01 \times 31 \text{ days} = 3.1 \text{ af} \\
 &= 80.3 \text{ af}
 \end{aligned}$$

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

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Garden Valley RS (NWS --103448)

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.

Gross Precipitation															
	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	3.39	2.39	1.97	1.47	1.46	1.11	0.44	0.34	0.95	1.32	3.05	3.92	0	659	659
15-Day Moving Average ^d	3.51	2.72	2.05	1.52	1.52	1.05	0.40	0.36	1.03	1.28	2.79	3.64			
7-Day Moving Average ^e	3.41	2.55	2.06	1.52	1.51	1.06	0.42	0.34	1.02	1.30	2.97	3.79			
3-Day Moving Average ^f	3.38	2.42	2.05	1.49	1.47	1.10	0.44	0.33	0.97	1.30	2.99	3.76			
Standard Deviation	mm/day												mm		
Monthly	2.85	1.56	1.79	1.05	1.60	0.81	0.58	0.66	0.99	1.32	1.59	3.08	0	168	168
15-Day Moving Average	2.97	2.13	1.74	1.38	1.54	0.99	0.54	0.62	1.27	1.41	2.07	2.53			
7-Day Moving Average	3.68	2.88	2.33	1.85	1.92	1.51	0.86	0.78	1.65	1.98	3.12	3.77			
3-Day Moving Average	4.74	3.80	3.28	2.65	2.52	2.27	1.25	1.08	2.18	2.78	4.28	5.36			
20% Exceedance	mm/day												mm		
Monthly	5.09	3.61	3.17	2.55	1.96	1.82	0.80	0.47	1.48	2.15	4.40	4.80	0	725	725
15-Day Moving Average	7.71	5.37	5.37	4.08	3.49	2.93	1.41	0.95	2.73	3.56	6.48	7.07			
7-Day Moving Average	10.80	7.81	7.03	6.80	5.51	4.24	2.37	1.73	4.90	6.24	11.14	12.09			
3-Day Moving Average	18.53	12.80	13.27	10.33	9.47	9.07	4.67	3.60	7.47	11.17	16.80	22.07			
80% Exceedance	mm/day												mm		

ET *Idaho* 2009: Evapotranspiration and Consumptive Irrigation Water Requirements for Idaho

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Open water - shallow systems (ponds, streams)														
Actual Evapotranspiration (Click here for a graph)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Growing Season ^a	Non Growing Season ^b
Mean	mm/day												mm	
Monthly ^c	0.27	0.74	1.44	2.34	3.36	4.13	4.78	4.25	2.77	1.50	0.49	0.17	801	0
15-Day Moving Average ^d	0.26	0.72	1.44	2.32	3.36	4.14	4.81	4.26	2.71	1.50	0.47	0.17		
7-Day Moving Average ^e	0.26	0.73	1.44	2.33	3.35	4.14	4.80	4.25	2.73	1.50	0.48	0.17		
3-Day Moving Average ^f	0.27	0.73	1.44	2.34	3.35	4.13	4.78	4.25	2.75	1.50	0.48	0.17		
Standard Deviation	mm/day												mm	
Monthly	0.09	0.11	0.33	0.34	0.48	0.37	0.44	0.44	0.23	0.25	0.09	0.04	34	0
15-Day Moving Average	0.08	0.15	0.29	0.41	0.49	0.49	0.36	0.44	0.37	0.28	0.13	0.03		
7-Day Moving Average	0.09	0.21	0.38	0.51	0.66	0.66	0.45	0.54	0.50	0.39	0.18	0.04		
3-Day Moving Average	0.11	0.26	0.47	0.63	0.82	0.83	0.57	0.64	0.60	0.47	0.21	0.05		
20% Exceedance	mm/day												mm	
Monthly	0.30	0.79	1.55	2.54	3.58	4.33	4.95	4.50	2.93	1.62	0.56	0.19	836	0
15-Day Moving Average	0.37	0.94	1.96	2.81	4.21	4.79	5.21	4.72	3.23	1.95	0.71	0.21		
7-Day Moving Average	0.45	1.18	2.17	3.29	4.64	5.04	5.45	4.97	3.58	2.29	0.90	0.26		
3-Day Moving Average	0.55	1.30	2.59	3.70	4.83	5.44	5.70	5.22	3.87	2.51	1.08	0.30		