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Hydraulics

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Water Resources

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SEP 09 2013

DEPARTMENT OF
WATER RESOURCES

September 6, 2013

Mr. Gary Spackman, Director
Idaho Department of Water Resources
P.O. Box 83720
Boise, ID 83720-0098

Re: Spring Discharge Rehabilitation Options

Dear Gary:

The Flying Heart Homeowners Association, a subdivision just north of the City of Hailey is a client of Brockway Engineering, PLLC. This subdivision has water rights from springs arising on their property which provide the water supply for recreation ponds and water amenities on the property. The spring flows are authorized under a 1979 non-consumptive water right for 10 cfs with spring flow emanating from three (3) springs and flow entering the Upper Pond on the subdivision. The enclosed aerial photo shows the spring sites, the Upper Pond and the Lower Pond on the property.

Recent discharge measurements on the three spring outflows showed a total discharge of 3.27 cfs whereas the decreed water right and previous flow measurements have been in near 10 cfs. Flows have been measured by the Watermaster District 37 at a weir at the outlet of the Upper Pond. Figure 1 shows the plot of measured flow at the outlet of the Upper pond for the period 1995 thru 2012. The declining trend is evident and appears to be continuing due to general declines in shallow aquifer levels.

The Homeowners Association has retained Brockway Engineering to advise them on the possibility of increasing the discharge from the three (3) spring to provide the decreed discharge and alleviate low-flow problems in the channels and ponds. The hydraulic options are 1) install buried perforated pipe collectors at the head of each spring if possible to enhance the flow or 2) install shallow sumps (estimated <16 feet in depth) at the head of each spring with low-head pumps to provide the increased discharge.

We have advised the Homeowners Association that the use of shallow pumped sumps would be the preferred hydraulic solution for two reasons. First, the installation of CMP or HDPE large diameter shallow sumps will cause significantly less impact to the vegetation and terrain at the heads of the springs and, second, the risk of unexpected aquifer water level declines will be

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alleviated. Use of buried perforated pipe collectors requires that aquifer water levels be maintained with some certainty since the receiving stream or pond water level controls the discharge and a decline in aquifer water level will cause the collector to cease functioning. Predicting the ultimate decline in the aquifer water levels is not possible with existing data.

We have advised the Homeowners that rehabilitation of the discharges from the springs utilizing buried perforated pipe collectors would be allowed under the existing water right 37-7767 without an additional permit or transfer from IDWR. However, we are unsure whether the use of shallow pumped sumps to achieve the same increase in discharge would be allowed without a transfer or permit. Using either procedure, the maximum total discharge would be limited by the water right to a total of 10 cfs and injury to other water rights would not occur.

I am requesting that you provide some guidance on the question of 'whether my advice to the Homeowners relative to the use of buried perforated pipe to enhance the spring flows is authorized under their existing water right without a transfer or other permits' and 'would the use of shallow sumps with pumps be allowed without a transfer or other permits'?

I have discussed this problem with Corey Skinner and Jeff Cooper at the Southern Region and they are not sure that the pumped sumps would be authorized and suggested I request guidance from you.

Thanks for your help and, as usual, time is of the essence.

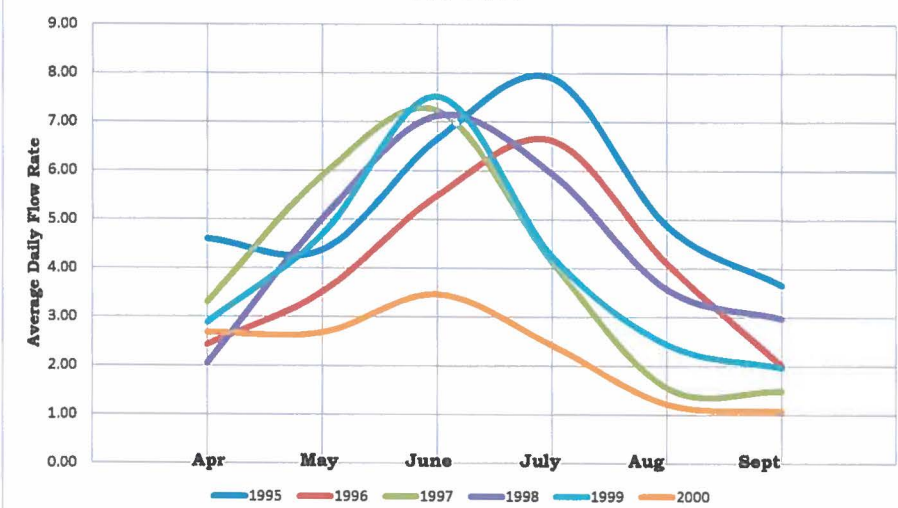
Sincerely,

A handwritten signature in black ink, appearing to read "Charles Brockway", written in a cursive style.

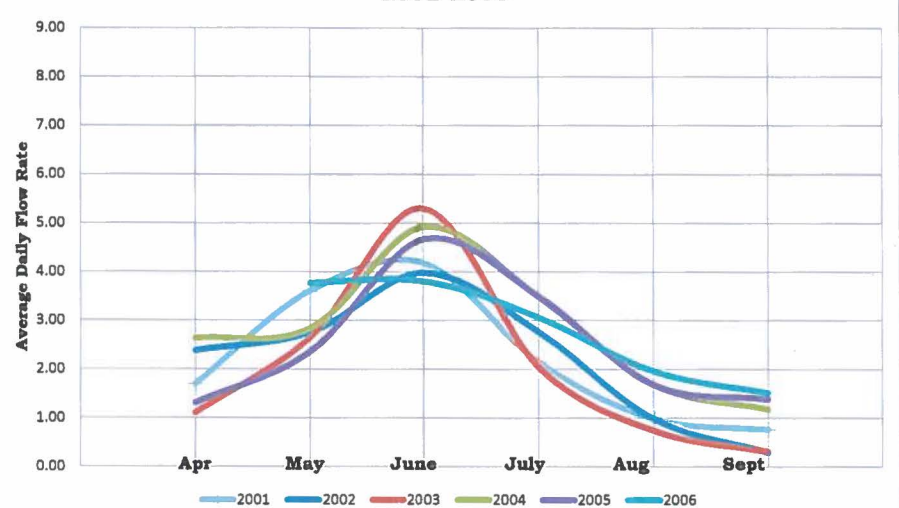
Charles E. Brockway PhD. P.E.

Cc: Will Miller
Corey Skinner, IDWR

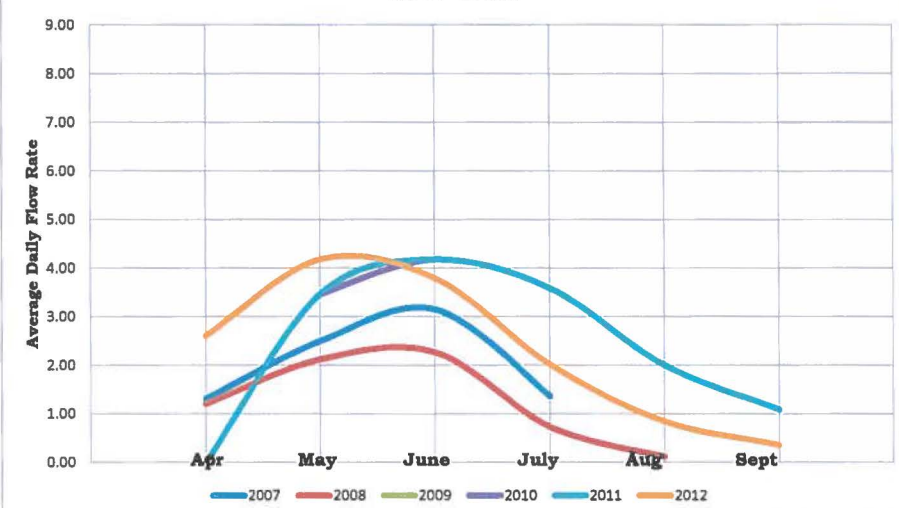
FHR Flow Measurements
1995-2000



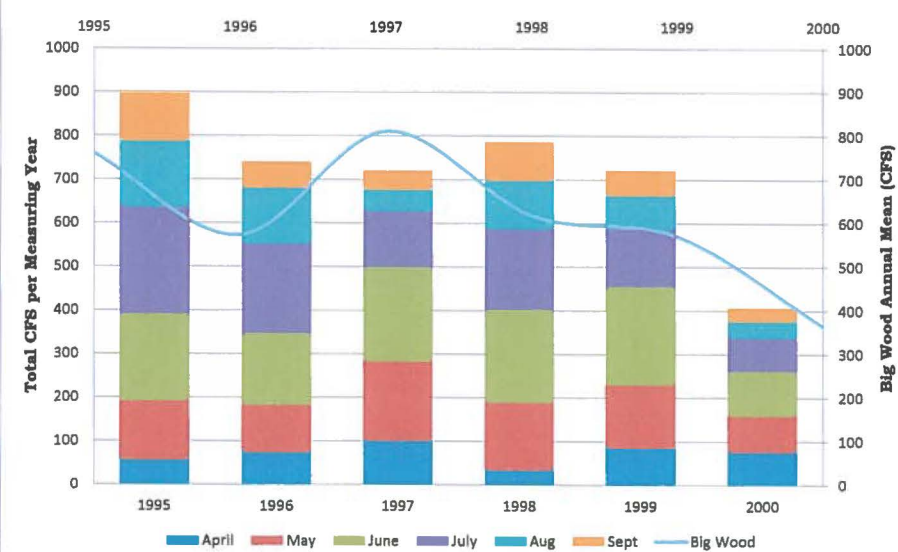
FHR Flow Measurements
2001-2006



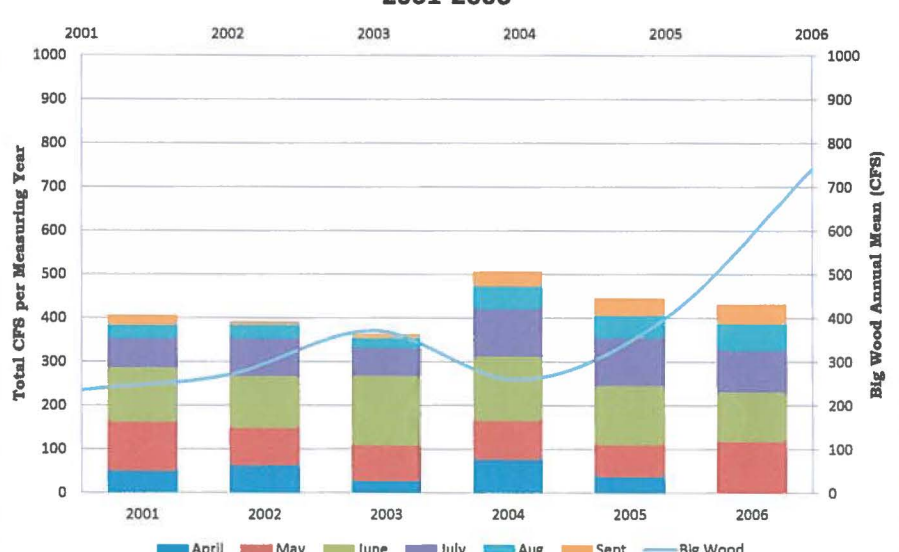
FHR Flow Measurements
2007-2012



FHR Yearly Comparison
1995-2000



FHR Yearly Comparison
2001-2006



FHR Yearly Comparison
2007-2012

