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DEPARTMENT OF
WATER RESOURCES

January 29, 2018

Idaho Department of Water Resources
PO Box 83720
Boise, ID 83720-0098

Attn: Dan Nelson

Subject: Measuring Plan for Permit 25-14425

Dan,

Per our earlier discussion, this letter provides further information regarding measurement requirement conditions for permit 25-14425. This permit has a condition requiring: "The right holder shall install measuring devices to determine the instantaneous rate of flow of water into the diversion and the flow in South Fork Sellars Creek." I understand that you asked for a copy of the stream rating and a plan for future measurement.

My beneficial use field examination report described the measuring device for diverted water and a staff gage for a rated section of South Fork Sellars Creek. The permit owner provided SPF with copies of discharge measurements made by Harper-Leavitt Engineering (HLE). HLE measured discharge with an HACH FH950 portable velocity meter*. The HLE data includes ten discharge measurements made on five site visits during 2016 and 2017. Flow was measured with the diversion headgate open and closed, yielding two measurements per visit. In addition, I measured discharge on September 8, 2017 with a Pygmy current meter, top-setting rod and Aquacalc during my visit for the beneficial use field exam.

* Personal communication with Luke Jolley, Harper-Leavitt Engineering.

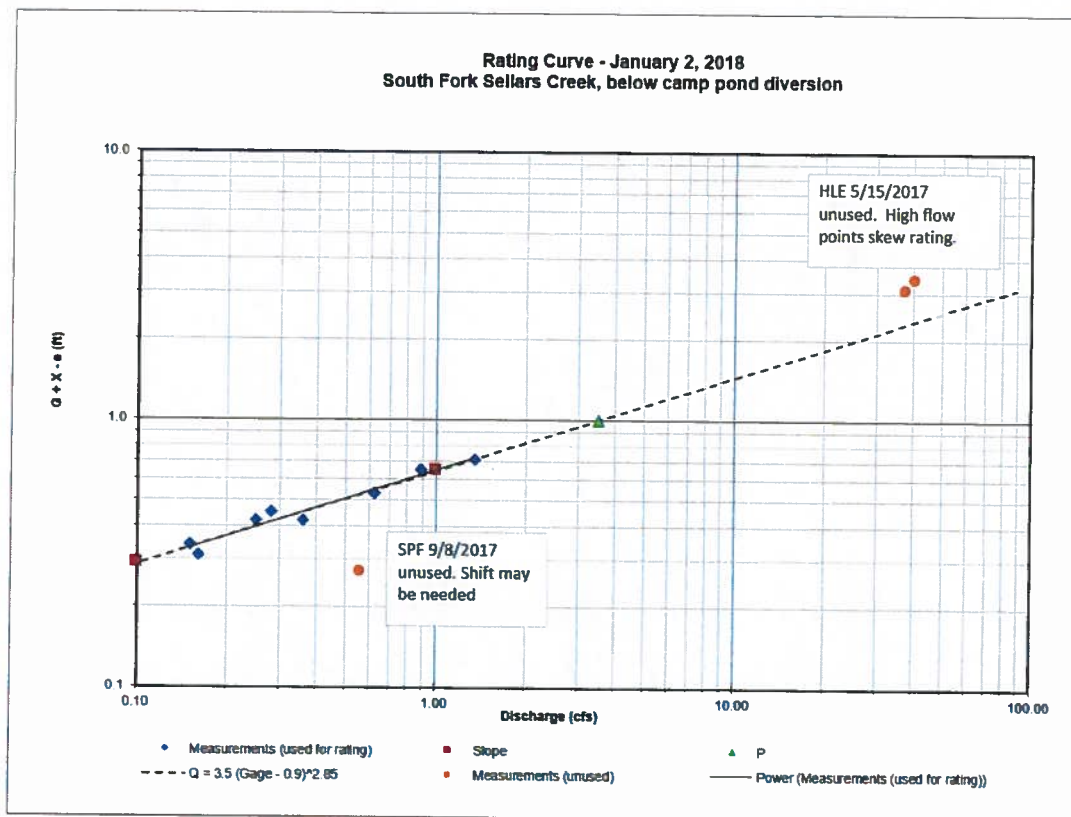


Figure 1: Log-log rating curve (unshifted).

Figure 1 shows all measurements on a log-log plot for rating curve development. The HLE measurements below 2 cfs plot very well and are the basis for a rating, plotted with normal axis in Figure 2. The HLE May 15, 2017 measurements around 40 cfs skew the rating and I don't recommend the use of these measurements. In my opinion, accurate measurement for flow above 1 to 2 cfs do little to accomplish the intent of the IDFG's interests and the permit's measurement condition, which is to ensure that no more than 50% of the creek flow, up to the 0.25 cfs diversion rate limit, in order to protect fish habitat.

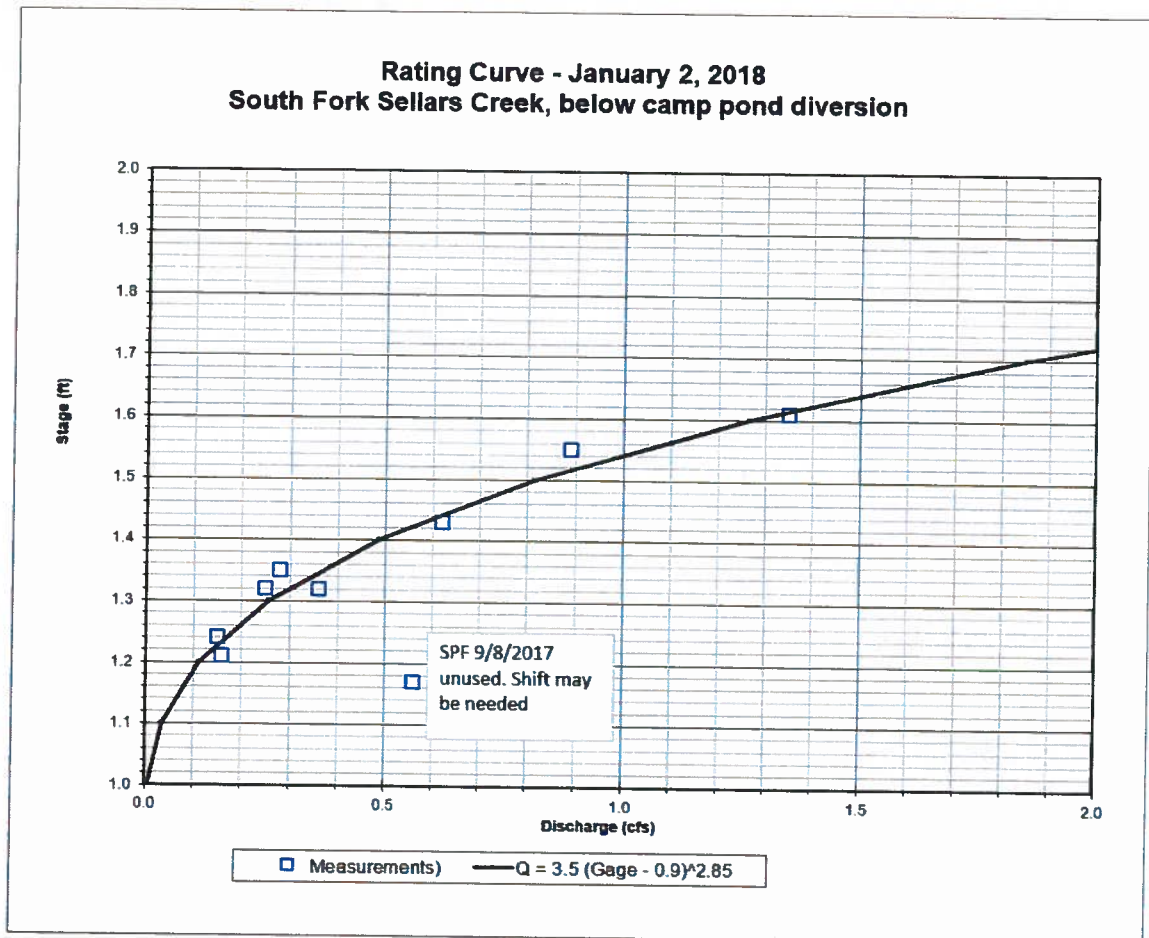


Figure 2: Rating curve (unshifted).

My measurement on 9/8/2017 did not fit the curve with an observed gage height lower than expected for the measured discharge. It is likely that the high runoff during spring 2017 altered the channel. A shift of -0.23 feet is indicated and is applied in Figure 3 and Figure 4.

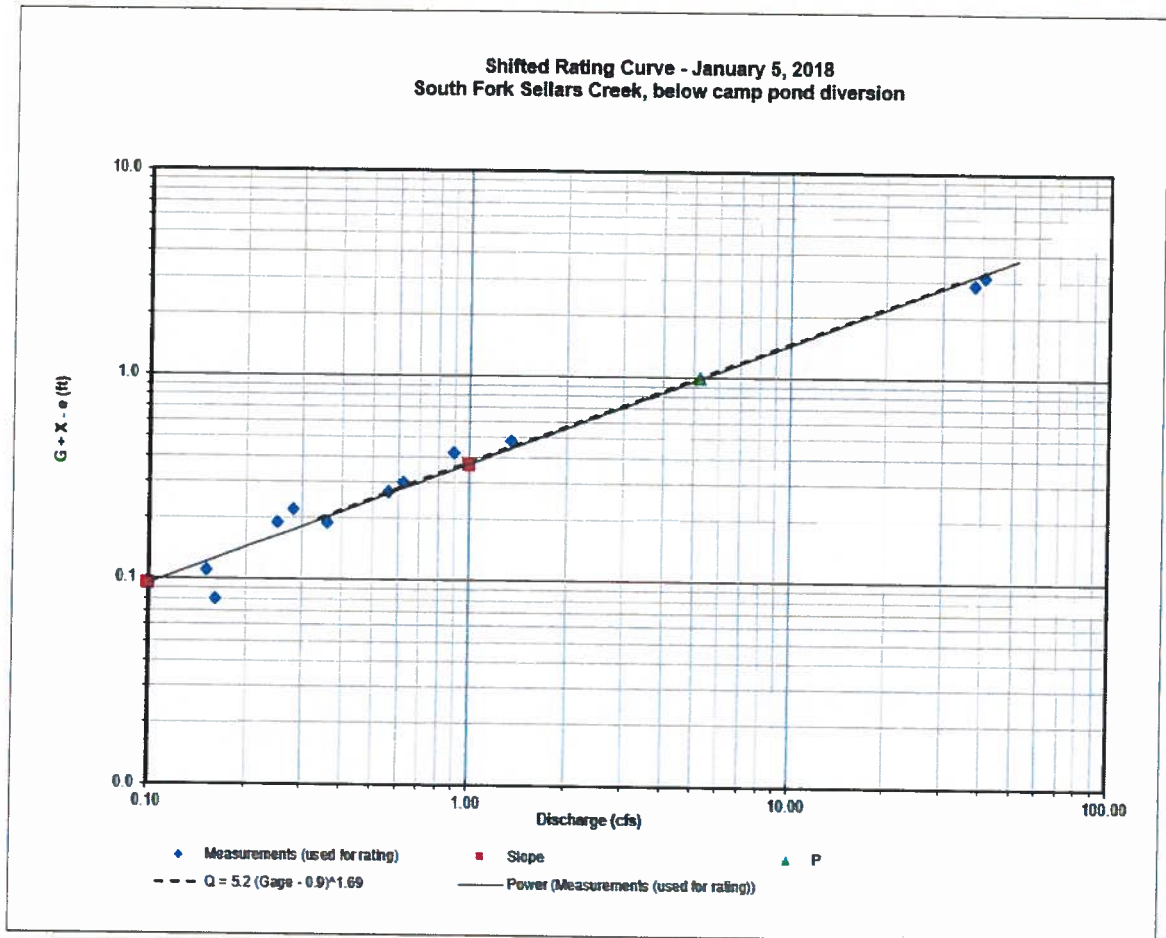


Figure 3: Log-log rating curve (shifted)

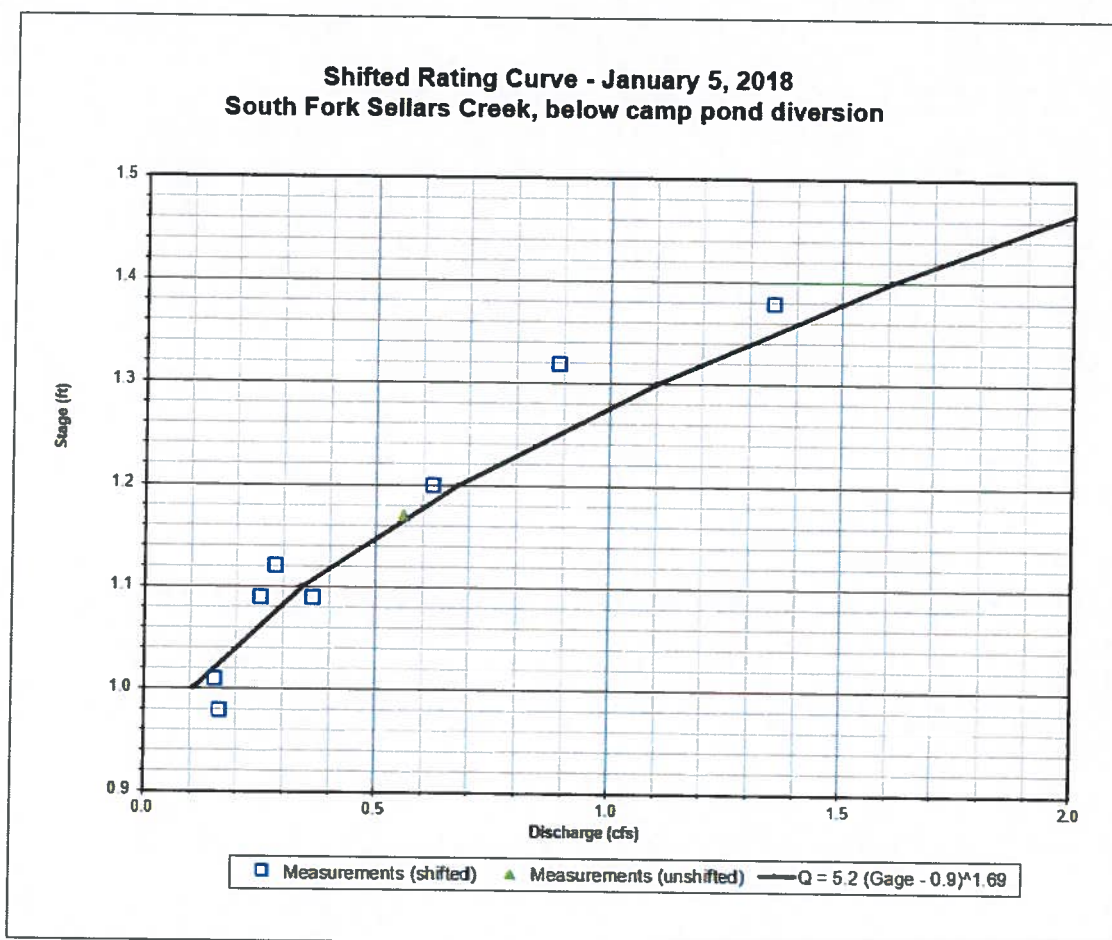


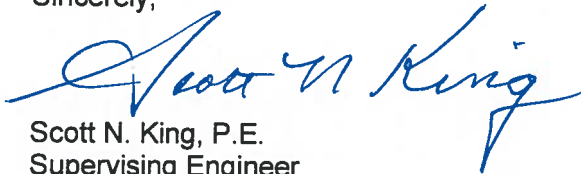
Figure 4: Rating curve (shifted).

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The owner proposes conducting at least one measurement during 2018 at flows in the approximate range of 0.5 to 1.5 cfs to confirm the shift indicated from SPF's measurement and/or to apply a new shift. Further, the owner proposes making at least one discharge measurement every two years (2020, 2022, etc.) and adjusting the rating as necessary. The owner will maintain the rating and provide updated information to IDWR upon request. The owner understands these measuring requirements may change in the future based on the requirement of Water District 1 and/or a local stream watermaster.

Please let me know if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Scott N. King". The signature is fluid and cursive, with the first name "Scott" and last name "King" clearly legible.

Scott N. King, P.E.
Supervising Engineer

cc: Matthew Davidson

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