

### Allan Williams Joins Schnabel Team



Mr. Allan Williams, PE, will join Schnabel in September as a Senior Water Resources Planning Specialist. He brings unique expertise through his 34 years of experience in the water-wastewater industry that includes directing large municipal water and wastewater utilities in Jacksonville, Florida, and Greensboro, North Carolina.

Since taking on the role of

Director of Water Resources at the City of Greensboro in 1996, Mr. Williams helped transform the water and sewer utility into a valuable asset with ample water supply reserves and a sustainable infrastructure. He has been a strong advocate of yield capacity reserves, infrastructure rehabilitation and replacement, and rate structures that appropriately fund asset management. He is also a proponent of conservation based pricing and realistically assessing water supply yields for drought vulnerability. He was called by the State of North Carolina to assist state-wide efforts during the severe drought of 2007-08. Allan has long advocated the vital importance of water supply planning in: ensuring a safe and dependable supply; appropriate fire protection; stimulating economic development; and ensuring sustainable funding.

### Don't Miss RCC 2011



Registration is now limited for RCC 2011, a 3-1/2 day seminar, training and tour program on the design, construction, performance and quality control on the use of RCC for the construction of new dams and the rehabilitation of existing dams.

The seminar portion of the program is a comprehensive structured course on the use of RCC in dams. For the first time, an RCC placing and quality control demonstration will be included in the program. The tour will be of

the completed 188 ft (57m) high Hickory Log Creek Dam which contains 220,000 cu. yd. (168,000m<sup>3</sup>) of RCC.

The program is sponsored by Schnabel Engineering, ASI, Fall Line, and Testing and Inspection. For more information, or to register check the News Section of our website at [www.schnabel-eng.com](http://www.schnabel-eng.com)

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### From the Director's Chair

#### Dimensions of Success

While this discussion is focused on competitive proposal submittals, I strongly believe in long-term relationships based on trust and responsiveness (where it is permissible, and it should be). I have told many prospective clients who were happy with their current consultant to stay the course and call us only if that situation changes.

The qualification/proposal process has always been a source of anxiety for consultants, and it is no less a concern for Schnabel. Each firm looks for ways to show its credentials favorably and each strategizes for 'hooks' to include in its project understanding and approach. This is all standard fare for the consulting business, and it always leaves me unsatisfied and recognizing that there are critical factors that can't effectively be expressed in a submittal package.

During several shortlist interviews, I have noted that while proposal submittals appear to be 3-dimensional, they are in reality merely a stack of 2-dimensional elements (pages), and truly represent only two dimensions of the selection process. Project submittal documents are well adapted to reflect a firm's talent (experience and credentials - one spatial dimension). They are also exceptional vehicles for presenting project insights (background, approaches, uncertainties and alternative considerations - another spatial dimension).

However, the world we live in has three spatial dimensions and one time dimension, and effective project team selection requires attention to all these dimensions. The missing spatial dimension relates to character (honesty, reliability, dedication and a focus on client needs). The missing time dimension relates to performance over the full duration of the project (responsiveness, proactive advocacy, consistency, and dedication to purpose). How does a firm self-report on these elusive characteristics in an effective and believable manner? My theory is that they can't – at least not very well.

The interview can provide some fleeting insights into these renegade dimensions, but much of the presentation is managed stagecraft, and any correlation between presentation skills and project performance is largely incidental. For the record, Schnabel personnel do very well at interviews, so this is not a tear in our soup moment. However, consultants need to make a significant up-front investment in preparing project submittal documents and, having done so (hopefully), preparing for and meeting with the selection team for further discussion. I believe that, out of necessity, it is the client that needs to make a parallel investment to corral these renegade dimensions.

Since the missing dimensions relate to attitudes and actions, self-reporting by the submitting firm will likely be measured with suspicion and can only be supported with testimonials, discussions related to meeting schedules, etc. To put real flesh on the bone, an external perspective is needed. Therefore, the client needs to reach out to others that can directly report on and verify these critical character and performance considerations.

I'm certain that within every submittal, a list of client references have been prominently displayed (presumably selected because these engagements turned out well). Clients should avail themselves of these contacts, but it is also imperative that the selection team identify contacts from projects that were not highlighted. Search resumes of key personnel, supplemental project summaries, the internet and other sources. Identify several additional regional contacts for each short-listed firm, and then ask the entire contact list about each of the competing firms. It is likely that they will have opinions/histories with most of the firms, based on direct work experience and/or feedback from work done for neighboring jurisdictions/companies. A little effort would be well spent verifying credentials (a submittal dimension). However, the primary benefits to be gained are in validating the robustness of those rogue dimensions – focusing on character and commitment as revealed during past assignments. It is an investment that will pay dividends through more fulfilling and responsive relationships and projects that deliver greater value.

Roll up your sleeves when you make a selection - What one can perceive takes more than perception. Once you get past the "we're wonderful" surface, there's much to contrast in commitment and purpose.

# Hydraulic Modeling for Spillway Design and Performance

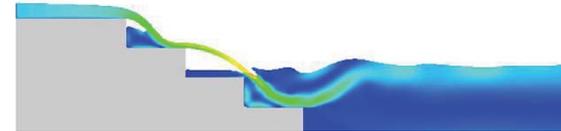


Modeling of hydraulic structures has been performed since the 1800s. This model was undertaken in 1936 for the design of Poe Dam in Pennsylvania.

Today, complex spillway behaviors are analyzed using laboratory physical models or numerically, using computational fluid dynamics (CFD) software. Sometimes, applying both methods is advisable.

Schnabel has undertaken several designs that benefitted from both physical and CFD models. As a part of our commitment to the profession, Schnabel also contributes to ongoing research being performed for physical and numerical models through grants and technical support.

At Lake Townsend Dam, a deteriorating gated spillway is being replaced with a seven cycle labyrinth spillway with a stepped downstream chute. Both physical and numerical modeling were performed for this project to benefit from the unique features of each modeling approach. Laboratory flume studies were performed at UWRL under the direction of Blake Tullis, PhD. Ancillary CFD modeling was performed by Bruce Savage, PhD of Idaho State University.

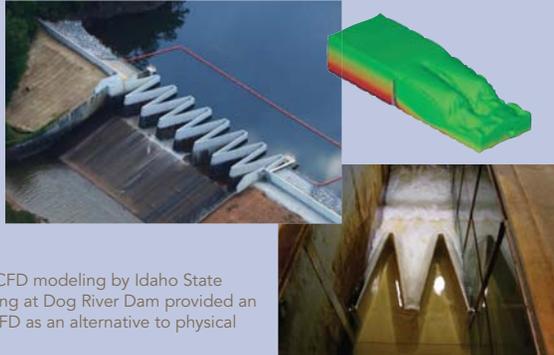


[See link to Lake Townsend Dam publication and Fall 2010 Water Wire article](#)



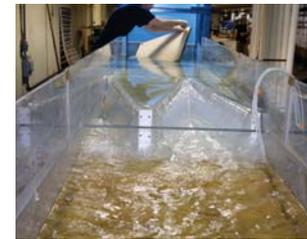
Two dimensional CFD models evaluated alternate step configurations for Lake Townsend Dam, with the best performing configurations physically modeled at UWRL.

At Dog River Dam, a ten foot raise of the reservoir to increase water supply necessitated raising this project's labyrinth spillway from 15 feet to 25 feet in height. This raise resulted in a geometry well outside of the range of tested labyrinth spillway layouts. Schnabel contracted with the US Bureau of Reclamation to perform physical modeling for the Dog River spillway modifications.

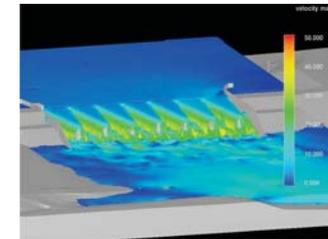


Additionally, Schnabel privately funded CFD modeling by Idaho State Professor Dr. Bruce Savage. Dual modeling at Dog River Dam provided an early verification of the applicability of CFD as an alternative to physical models.

[See link to Dog River Dam publication](#)



A 1.5 cycle model was installed in the UWRL flume to develop a discharge rating and evaluate two CFD identified step configurations downstream of the weir.



A physical model of the entire project would have been cost prohibitive. Therefore, CFD was used to model overall spillway hydraulics and flow reentry into the stream valley under a wide range of discharges.



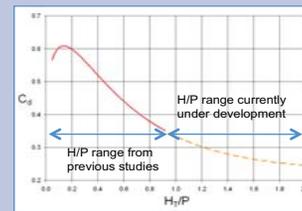
Hickory Log Creek Dam's converging 180-foot high stepped spillway was equipped with a crest gate. This approach created both construction economy and hydraulic complexity.



To provide applicable parameters for design, spillway behavior was modeled by Dr. Michael Johnson at the Utah State University's Water Research Laboratory (UWRL).

[See link to Hickory Log Creek Dam publication](#)

Schnabel has contributed expertise and provided financial support to the Utah Water Research Laboratory and Idaho State University for on-going research related to labyrinth spillway performance. One study evaluates the performance of labyrinth weirs for high head applications. Both physical and numerical modeling are being utilized for key aspects of these evaluations.



Modeling was performed by Brian Crookston, (pictured) who recently received his doctoral degree from Utah State University.

We are pleased to announce that Brian is now employed by Schnabel as a member of the dam engineering group in our West Chester, PA office.

For more detailed discussion, go to: <http://www.schnabel-eng.com/Resources/WaterWire.aspx>