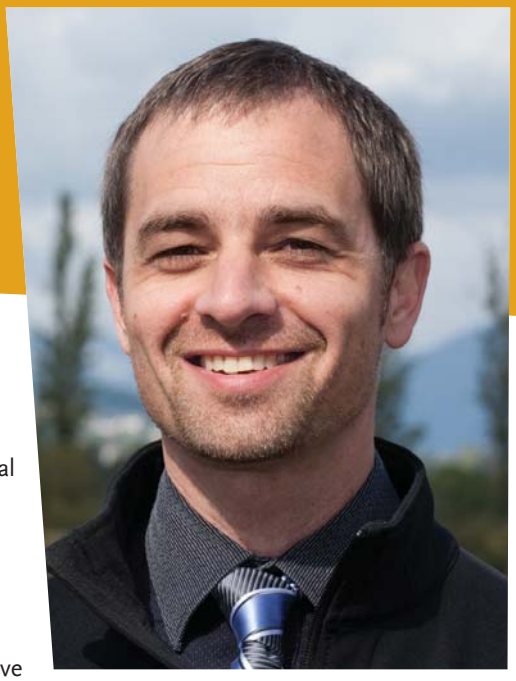
Risks worth taking

By Dean Shiskowski, Ph.D., P.Eng



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I continue to marvel at the issues those in my chosen profession have been forced to consider over the past few years. The global drivers of energy-efficiency and self-sufficiency as well as resource limitations and climate change require those practicing in the area of wastewater management to address issues and consider ideas that were only a small or non-existent blip on the radar screen as recently as five years ago.

Addressing challenges will require taking risks, which the current and upcoming generation of engineers will need to consider taking. The challenge is that the civil engineering world, which is entrusted with spending huge sums of public monies, is a necessarily conservative business in general. At the same time, this conservativeness, if unchecked, may prevent our society from making the changes needed to preserve and enhance our quality of life and that of our natural environment.

Consider a simple example, water conservation. You would be hard-pressed to find anyone who does not think this is a good idea. But consider a comment made by George Tchobanoglous, Ph.D., an Emeritus Professor at the University of California and a globally recognized leader in environmental engineering, at a recent Water Environment Research Foundation forum. He described the "unintended consequence" of a particular community's aggressive pursuit in the implementation of water-saving fixtures. They had succeeded in significantly reducing their potable water use. But when this reduced volume became wastewater and was discharged into the sewer system, the low-flow velocities were insufficient to flush the pipes of accumulated, settled solids. Addressing this maintenance issue required flushing the sewer system with potable water obtained from hydrants. This unintended consequence significantly compromised the sought after benefit.

This is where the risk taking comes in. In this example, if we talk water conservation, the work might be installing the next kilometre of sewer pipe in the ground using a smaller diameter and greater slope than used previously. Sounds easy. But consider that this decision a) may go against decades of design practice and experience and b) could have serious consequences if in fact we don't achieve the water conservation goals set out. Would you be willing to take this decision to your municipality's political board?

Regardless of our individual role in this industry, many will have to take such risks if we are to advance the measures needed for society.

As the next generation of engineers, many of you will have the opportunity to advance new ideas from the ground floor. This will require taking risks first with your own peers. My own experience is but one example. My Ph.D. work focused on nitrous oxide (N_2O) generation in wastewater treatment bioreactors. N_2O is a very powerful greenhouse gas (GHG) with a global warming potential equivalent to 300 times that of carbon dioxide. Very little was known about this potential greenhouse gas issue in the wastewater community at that time. My initial attempts at sharing what I had learned with those I interacted with at conferences and discussion forums were often met with resistance and apathy.

Fast forward a few years – through the efforts of a relative few raising the initial awareness – the N_2O issue is now arguably the hottest GHG topic in wastewater treatment. Now, I get invited to speak at local and international conferences, provide commentary to NASA researchers, write editorials in journals and participate in related research activities conducted in Canada and elsewhere. At times it felt like pushing a rope, but in the end it has been very rewarding.

Some risks are worth taking. Will you be bold enough to take them?

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