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John Kuosman

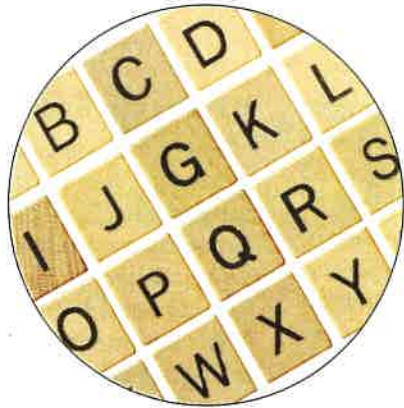
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## Words with Friends — A Few Choice Words for Operators and Engineers

By John Kuosman, P.E.

**A**SK SEVERAL WATER INDUSTRY professionals about their image of a utopian water day, and you will get varying answers. Some people see themselves recreating at their favorite water body. Others see the sun-glare reflection off newly-installed process equipment. Yet others feel the quenching sensation of drinking a water-derived beverage after a workout. For me, I imagine an operator and an engineer in a control room playing a game of Scrabble!

If my mental image initially feels unexpected to you, there is good reason. We have incredible water engineers and water system operators. What is sometimes missing is the intentional creation of a collaborative environment, where the perspectives of both can be successfully integrated into our projects. Here are two outcomes of incomplete collaboration, with stereotypical disparaging terms added:

1. Failure to meet elevated expectations or an over-engineered solution, or
2. Higher operating costs and reduced efficiencies or un-attended operations.

I suggest there are a few words we all could add to our shared vocabulary to create a more collaborative environment and improve effectiveness.

### Word 1 — Professional

States require engineers and operators to earn their professional designation through licensure. For the highest level of facility certification, operators typically must have a minimum of four years of practical experience in addition to

passing four progressively difficult exams. Engineers typically must have four years of college, four years of practical experience, and must pass two comprehensive eight-hour examinations. Differences in the practical requirements potentially create differences in engineers' and operators' perspectives.

For operators, the practical requirement teaches full sensory interplay between mechanical, electrical, chemical, biological, and process control systems. Operator training occurs in the ever-changing classroom of diurnal variations, collection and distribution system upsets, seasonal changes, construction outages, start-ups, obsolete infrastructure, equipment failure, ongoing maintenance, and lagging control data. The professional operator's practical experience results in nimble, versatile, resilient, and broadly focused perspectives derived from direct observation.

For engineers, the practical requirement mirrors the engineer's academic training and provides detailed focus in areas of implementation, not necessarily operations. It typically emphasizes theory application, system modeling, unit process selection, detailed design, and technical specification. Most practical training does not cross over into all project delivery phases and generally includes limited direct observation. The professional engineer's practical experience results in deliberate, detailed-oriented, optimization-biased, and specialized perspective based on applied theory and modeling.

In the end, the practical experience portion of professional certification

provides two equally valuable, but very different perspectives: Engineered processes that cannot be reproduced under evolving conditions and as part of a larger system have only theoretical value; and operable systems that perform below modeled capacity or established industry standards and are inefficient. We must merge engineer and operator perspectives to find the sweet spot between these two extremes.

### Word 2 — Respect

Operators and engineers primarily work together on projects, but they also have day jobs beyond project work. Each faces budgetary constraints, competing deadlines, and other fires begging for immediate response. Under a constrained schedule, it is often easier to forego initiating critical conversations with the other side. Feedback that challenges base assumptions may be ignored because acceptance would create more work. Despite the pressure to do so, ignoring the varied perspectives of engineers and operators always manifests negatively in the end. Intentionally creating respect for varied perspectives will ensure success.

Using the Respect Cycle (Figure 1) can help facilitate project success and avoid potential pitfalls. The Respect Cycle comprises: inviting a conversation; deep listening to feedback received; openly considering feedback in light of project drivers; creating buy-in through creative and collaborative action; and respectfully repeating.

The buy-in phase is the most critical step in this cycle. Whether or not action is needed to amend the project's

implementation (i.e., material, process, schedule, budget, or equipment changes), there must be a unified mind-set (for both engineers and operators) leaving the buy-in phase. Buy-in occurs when critical stakeholders know that their perspective was considered as part of the process, the basis of decision-making is clear, there is acknowledgement and quantification of future risk, and there is commitment to collaboratively mitigate that risk. Respect, as intentionally practiced through the respect cycle on all project phases, can unite the perspectives of engineers and operators to improve water project implementation.

**Word 3 — Grace**

Grace is the harmonizing component in successful projects and can be defined as a refined attitude of generosity and goodwill. For water professionals, refinement comes from the practice-based experience obtained through certification, intentional

collaboration using the respect cycle, and commitment to continuous improvement. Generosity comes by sharing the wisdom of our unique perspective and inviting alternative perspectives that challenge us to grow as professionals. Goodwill allows a temporary pause from our high-pressure, high-performance environments to refocus on the common DNA that unites water industry professionals—a commitment to sustain and promote community vitality through clean water. In the end, engineers and operators are good-willed people, doing the best they can with the perspective gained through their unique experiences. Grace provides all of us the space to separate from distracting pressure and unite our perspective to better serve our communities.

There are a few choice words we can each use more frequently regardless of our role in the water industry. Making the choice to be professional, respectful, and graceful will allow us to see beyond the illusion that

engineers and operators are separated in their goals and thinking. We can then choose to shift our focus toward the reality that our individual and collective wisdom must be represented in projects to sustain and promote community vitality through water. As a side note, these choice words may also result in triple-word-scores in a game of Scrabble among friends!



*John Kuosman, P.E., is the Colorado Water Business Team Leader for Garver, a full-service engineering consulting firm across the United States. He has a passion for leadership, collaboration, communication, and stakeholder connection within the water industry. As Adjunct Professor at the Colorado School of Mines, Kuosman is teaching these skills to the next generation of engineers and scientists and has been a strong advocate in growing Colorado's Operations Challenge program. Contact him at 720.202.8751, or JAKuosman@GarverUSA.com.*



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