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GETTING IT DONE

I recently attended the American Society of Irrigation Consultants (ASIC) – yes, there's an irrigation consultants association – annual meeting in Scottsdale, Ariz. And since ASIC was in Scottsdale, they invited Sean Emerson and Jeff Plotts to talk about how they irrigate their courses from both a water-quality and a water-quantity standpoint.

Sean, director of agronomy at Desert Mountain Club, oversees six 18-hole courses using some 2-million gallons per acre annually on a combination of warm- and cool-season turf. Jeff has the same position at TPC Scottsdale, overseeing 400 acres at a 36-hole resort/public facility utilizing warm-season turf. The 400 acres consists of 185 acres of turf, 200 acres of desert landscape and 15 acres of surface water. He also hosts a PGA Tour event every January.

Sean is an opinionated individual who is also a great speaker. His presentation centered on the efforts his staff has taken to decrease not only their water use, but their energy use, too, while providing excellent playing conditions on green turf. At Desert Mountain they are concerned with the usual irrigation parameters: precipitation rate, cycle time, uniformity and part circle arcs. However, they have gone one step further observing gallons per kilowatt (gal/kw). The gallons-per-kilowatt measurement allows Desert Mountain to determine not just how efficient they are with water or energy, but how one influences and impacts the other.

To be more energy and water efficient, Desert Mountain has created or purchased solutions for data capturing. These include utilizing wireless ground sensors, weather stations, weather pattern monitoring and the IBM Smarter Cities system to allow existing equipment software's (irrigation central control, pump station monitoring) to interact with each other for an integrated view and feedback of their water/power usage. They monitor lake levels, water use and energy use for trends. For all aspects of their water and energy use they plan, implement, record, evaluate, and revise. The result is significant water and energy savings, as well as improved conditions and lots of data to further refine their procedures.

Jeff has a more subdued personality, but he still gets his points across. His passion for providing tournament conditions is evident. TPC Scottsdale has a number of operational issues including: being a flood basin, difficult water quality, fine textured clay soils, lack of positive drainage and an arid environment. Each is a difficult problem on their own, but combined they present a challenge. He studies and measures data on salinity areas, distribution uniformity, and turf vigor. This allows TPC Scottsdale to correlate irrigation and drainage patterns to salt accumulations and turf health. Using the data, Jeff created Water Quality Management Zones (WQMZ) to manage irrigation applications and Na+ accumulation. The WQMZ's are also designed to manage salt loads during different times of the year based on turf stands. In the future, each sprinkler is assigned to a WQMZ zone and will be programmed accordingly and will utilize soil-moisture sensors to substantiate and fine tune their process. With this data, TPC Scottsdale will make correlations between salinity and moisture. Jeff also uses micro-irrigation (above ground micro sprays) to decrease salt and transitional stresses.

> Sean [Emerson] and Jeff [Plotts] were quick to point out that to accomplish what they have to date, and to make their programs successful, they have used a number of different consultants to help structure and implement their water, soil and energy plans.

The results of Jeff's initiatives have resulted in an average of 138.75 less acre feet (45.21 million gallons) of water used annually over the last five years. Not only has that saved considerable dollars, but also reduced salt inputs by 189.45 tons annually.

Both Desert Mountain and TPC Scottsdale are examples of how poor water quality can be managed and at the same time save water and energy. They provide a superior golf product in spite of these challenges and are happy to share their approaches, experiences and results with others. **GCI**