

Tom Healy, Layne Christensen Company

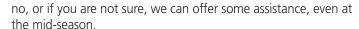
When Luke called in March requesting an article for On Course, he thought it would be best for the July issue, since we would then be in the heart of the summer. What better timing for a water supply company topic, right?

This made me think about the crazy irrigation season last year. No sooner had we come back from the annual convention trek in early March, 2012, than the golf course maintenance season started in earnest. So, I thought a good topic for On Course could be a diary of the first phase of the 2013 season, and how this compared to last year. As it turns out, my thought remained a thought until mid-May, when I realized we were fast approach-

ing the June 1 publisher's

(Luke!) deadline.

This procrastination panic hit me as I was driving to Beverly Country Club for the ITF annual day—a wonderful golf day, barely 60°, but certainly a highlight for the season so far. Our hard working MAGCS turf grass experts have been experiencing the opposite weather conditions this year as in 2012. Presumably everyone made it through last year, so your water supply was adequate for your needs. Does anyone wonder how you did make it? Do you know the present condition of your wells, well pumps, and irrigation pumps? If the answer to any of these questions is



Preventative maintenance on your well(s), well pumps, irrigation pumps, and motors is critical for ensuring adequate irrigation of your turf grass. It's perhaps too late to perform some of the suggested procedures, but during a down time (hopefully short), there will be some measures you can take to ensure a good working irrigation system. The recommended preventative maintenance we will cover pertains to your irrigation pumping station, no matter what type of pump(s) you utilize. If you utilize a well(s) for your water supply, there are ways to monitor your well(s) performance at the same time. These are simple tasks, so maybe July isn't a bad time to start. You can fully implement a Preventative Maintenance plan for next season and beyond.

The typical irrigation pumping station has vertical turbine lineshaft pumping equipment, with or without submersible jockey

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pumps. In other more rare cases, there are submersible pump stations in flood zones, and perhaps even horizontal, centrifugal pumps. In any case, the top priority is daily inspections of the equipment during operation. In your travels around the golf course, stop by the pump station to check the pumping equipment. Visual inspections can help spot a developing operational issue. With a vertical turbine pump, you should look for excess water leakage out of the stuffing box, just below the motor. Adjust the packing split glands, as necessary, to keep this leakage

(layne)

at a minimum. DO NOT tighten the split glands such that no water leaks by. There needs to be a fine mist or spray to keep the upper rings of packing cooled. If your stuffing box is equipped with a grease fitting, make sure to pump in grease after every 24 hours of operation. Also, listen to the pump in operation to detect whether a noise and/or vibration is starting that could lead to serious problems either with the motor and/or pumping assembly. The vertical hollow shaft motors could have oil and/ or grease that should be changed yearly. As far as the submersible

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WELL TEST DATA SHEET

Preventative maintenance checks don't have to be a high time consuming task, but they should be recorded in a format that is easy to track from inspection to inspection.

pumps, they should be operating very quietly, so noise here is a sign of a problem lurking.

For vertical turbine or submersible well pumps, some of the same factors apply as for irrigation pumps. In some well pump applications, an "oil-lubricated" pump may be utilized. In addition to the checks described above, you need to make sure the oil reservoir is full and that the oil feed is providing the proper lubrication to the bronze oil tube bearings. A general rule of thumb is 10 drops per minute per 100 feet of pump setting.

These are the basic inspection items to check periodically on your various pieces of pumping equipment. The quantitative items that should be checked are the pump flow rate; current draw or amperage of the pump; and—with well pumps—the water levels of the well. Water levels are checked using an airline, hopefully installed with the pump. Flow measurements require a flow meter, and all too often there isn't one (though it may not be too difficult to install). Without a flow meter, you can measure the "shut off" head or the maximum pressure build-up when closing the system valve for several seconds. This requires a working pressure gauge on the pump discharge head, as well as access to the pump curve for comparisons to expected performance levels. If you do not have access to the pump performance curve, your well pump service company should be able to get one for you.

In addition to the flow rate, taking amperage readings on

all three phases can be very valuable information for spotting downward performance trends. A decrease in amperage normally means the pump is wearing. Increasing amperage is typically due to a hole in the pump column pipe and/or pump bowl assembly, where water is re-circulated back into the well or irrigation sump.

When monitoring well performance, these same checks apply, in addition to checking the water level data previously mentioned. To spot the need for well maintenance, you will need the present flow rate in gallons per minute (GPM), along with the

static and pumping water levels, so that the drawdown can be determined (the difference between the non-pumping water level and pumping level). You can use this information to track "Specific Capacity," which is calculated by taking the GPM divided by drawdown. This Specific Capacity value will indicate the present condition of the well. When a well's Specific Capacity drops below 20% of the original, some type of well rehabilitation should be considered. As a well's Specific Capacity drops by 50% or more, it is considerably less likely that a well rehabilitation will restore the well to its original Specific Capacity.

We realize that preventive maintenance checks can be quite an undertaking for an already overworked golf course staff. However, once this becomes routine, it should not be a time-consuming task, but perhaps a most important one. We suggest that a maximum of one or two people be involved in the collection of data. In addition, all data should be collected and written down in a tabulated format (see our sample Well Test Data

Sheet pictured above). The key is to start now and develop baseline data. If the data you collect remains consistent, then all is well. But if variations begin to show up, you can spot them early and have something done before a catastrophic failure occurs.

Your Water Well and Pump professional can help formulate your Preventative Maintenance program. Or, if you would rather, they can perform periodic preventative maintenance checks. This process should be customized to your needs and your system equipment. This will provide you another level of confidence in ensuring that your wells and pumping equipment are ready for the long haul, especially when you experience another irrigation season like 2012 (and 2013?).

