Environment

Conserve Water Before You’re Told To
by Jim Firth

Irrigation water may be the single most important resource for a golf course. Without lush green grasses the lure of golf courses diminishes and a doubtful water supply makes it difficult to manage the facility.

Canada is blessed with a bountiful supply of fresh water. However recent changes in the global climate have put Canada's governments, federal and provincial, under increasing pressure to control the allocation of water. This increasing government involvement will impact upon, for example, the issuance of water permits, how and when golf courses use water, and change the ongoing reporting requirements. As big users of water, this has to have an impact on the operation of a golf course.

Traditionally, the sources of irrigation water for golf courses in Canada have been through groundwater, surface water and/or municipal supplies. The requirements to obtain a permit for either of these sources vary from province to province. In British Columbia for example, groundwater takings do not require a licence or permit, although surface water takings do. In contrast, Ontario water takings of greater than 50,000 litres/day from either a surface or groundwater source, requires that a permit be obtained from the Ministry of the Environment. Likewise, in Nova Scotia, water permits are required for the water takings of more than 23,000 litres/day.

Considering that a typical 18-hole golf course uses on average 800,000 litres/day, it's obvious that in most provinces and for most golf facilities, a water taking permit is required. A water taking permit is the government's method of allocating water fairly amongst all water users. Water permits are usually issued on a first-come, first serve basis and can be your guarantee of a perpetual water supply.

However, golf courses operating without a valid permit (where required) could face the prospect of fines, seizure of irrigation equipment and experience greater difficulty in applying for a valid permit.

Global Climate Changes
Aside from competing interests in water allocation, one of the major impacts on water use is the change in global climate. In the past 100 years there has been an average temperature increase of 1°C. Oddly enough while there has been a greater than 1 per cent increase in precipitation over this time, the higher temperature has led to higher evaporation and a greater drying out of the soil. So much so, that scientists predict a decrease of up to 30 per cent of soil moisture over the next 50 years. This "drying out" of the soil will greatly effect water
demand in the future and water availability.

In Ontario there has been recent concern over low water levels in the Great Lakes, possible summer drought conditions and the increasing number of new water takers. As a result, the Ontario Ministry of the Environment is revising the regulations on water use. This may also begin to happen elsewhere in Canada.

The Royal Canadian Golf Association, 1998 Canadian Golf Course Operation Survey, says a typical 18-hole golf course would use approximately 200,000 imperial gallons of water per day. This would translate into a yearly irrigation use of approximately 20,000,000 gallons. It is not uncommon however to see severe fluctuations in the demands requested by golf course owners when developing new irrigation systems or renewing permits. Golf course operators seem to have adopted a philosophy of when in doubt, "water". While there may be site specific instances where additional water is required, the general over-watering of golf courses is bad for the industry, and perhaps bad for the golf course.

**Water Conservation Is The Answer**
Above all, golf courses should take a close look at their water consumption and their present conservation practices and strive for improvements in water conservation.
Fortunately, the golf industry has taken a proactive role in addressing water consumption issues and introducing water conservation practices. Water conservation can be achieved by changes in the operation of the golf course, instituting physical changes to the golf course or addressing major capital improvements.

One operational change proven effective at reducing water use is completing a regular audit of the irrigation system to ensure it is maintaining its efficiency. Another is to naturalize more areas on the golf course which reduce the demand for water. In addition, if turf managers closely evaluate turf conditions, they may find that the turf can remain healthy with less water.

It's a well known fact that over-watered turf develops a shallow root system making it more prone to drought stress and disease infestation. Studies have shown that excessive fertilization increases the water demand for turf leading to excessive water use.

Reducing water use can also be achieved through using modern irrigation systems with a computerized control. These controls have been shown to decrease water use by up to 30 per cent using more efficient placement and use of water. Excessively large irrigation ponds have been shown to evaporate over 2,000,000 gallons per year, water which is lost from the irrigation system.

**Alternate Water Sources**
Alternate sources of water are now being more readily accepted in Canada. In
Alberta, for example, many golf courses are already relying on waste water for irrigation. This practice may soon be accepted in Prince Edward Island. Golf courses should make every effort to direct surplus surface runoff into the irrigation system. This can include the harvesting of runoff from parking lots, building roofs, overland drainage and so on.

These changes are very easy to adapt to new course construction and major renovation projects and with some creativity can be introduced to existing golf projects. Some golf courses can meet their peak irrigation demands in the summer months solely from excessive runoff during peak rainfall events.

Golf course operators should be pro active in their use of water before legislation forces them to do so. They can do this by knowing the daily, monthly and annual irrigation needs and the water capabilities of their system. By monitoring their system they will know if the consumption or use changes. If you noticed your gas consumption rose excessively in your car you would take it in for a tune up, golf course operators should do the same with their irrigation system. The information is available for golf course operators to develop a more efficient and effective water management strategy. With water consumption policies becoming more stringent it's imperative for golf course operators to take a proactive role in their water use.