

Protecting Our Groundwater Resources

By **JAMES D. GARDNER**
Golf Course Superintendent
Rochester Golf & Country Club

Clean potable water is essential to all of us. Heightened media awareness, an increased number of well tests and especially state of the art detection devices (partsquadrillion) have brought groundwater protection to the forefront.

The hydrological cycle is a very dynamic system, and all components are integrally connected to each other. We must continue to understand how our golf courses interact with the environment and the hydrological cycle. Site geology, well protection, proper storage and the use of chemicals and turf maintenance practices are all areas that should be evaluated and incorporated into your maintenance and management programs.

The geological origin and history of your site can play a very significant role in determining how susceptible your groundwater is to contamination. Even though all aquifers need to be protected, certain geological characteristics are more susceptible than others to point source contamination. An example is the karst geology in southeastern Minnesota, which features cracks and fissures in the limestone bedrock. This sometimes will provide a direct path from the land surface to the groundwater. Find what your golf course site geology is and integrate those factors into your groundwater resources protection plan.

Wells are a direct source to underground aquifers. Location and site protection of these areas are of paramount importance. All wellheads should be properly sealed and protected from surface runoff with a diversion berm. Back siphon devices need to be incorporated into all pipe(s) leaving the well and any fill hose bibs. Make sure that any abandoned wells are properly inspected and sealed. Where are your well sites in relation to your chemical storage and mixing areas? These areas should be a minimum of 150' from any wellheads.

Leaking underground storage tanks (USTs) are undoubtedly one of the biggest point source pollutants of our groundwater. Assess your present situation and make sure all your USTs are registered with the State of Minnesota and that you comply with all other maintenance procedures for maintaining them. For questions about UST registration and other relevant questions call the MPCA (Minnesota Pollution Control Agency) at 1-800-652-9747.

Turfgrass, in itself, is nature's greatest filter system. High plant density and the unique quality of thatch give turf the ability to absorb, adsorb and also biologically and chemically degrade compounds. This ability combined with environmentally sound turf maintenance practices of IPM (Integrated Pest Management),

irrigation and fertilizer use, and the management of potential groundwater sensitive sites greatly reduces the potential of contamination.

By practicing IPM and evaluating your chemical tools based on their mobility, toxicity and persistence in the soil, you can further refine your program.

Fertilization practices should include the use of slow release, phosphorus-free fertilizers around wetlands and other bodies of water. Reducing applications of soluble fertilizers will prevent possible runoff when the plant absorption decreases during cooler months. Evaluate your fertilizer program and reduce the amount of water soluble components used in the cooler months.

Judicious and timely use of irrigation will help reduce any runoff possibilities. Application of plant protectorants should be delayed if rainfall is imminent.

Protect groundwater sensitive areas from highly maintained areas by using untreated vegetative buffer zones.

It is our responsibility as stewards of the land to understand and continually update our profession to meet the demands of today and the future.

By incorporating sound environmental practices into all areas of our maintenance program, we can continue to make our golf courses beneficial environmental assets.