Groundwater Recharge Project

Odana Hills Golf Course

Background

The West Campus Cogeneration Facility is jointly owned by MGE and UW-Madison. It began operation in spring 2005 and provides heating and cooling for the UW-Madison campus and electricity for the growing Madison area.

The cogen facility withdraws water from Lake Mendota for operation. Although the water withdrawal will have negligible effects on lake levels, the reduced flow on the Yahara River could impact the lower sections of the river during very dry periods.

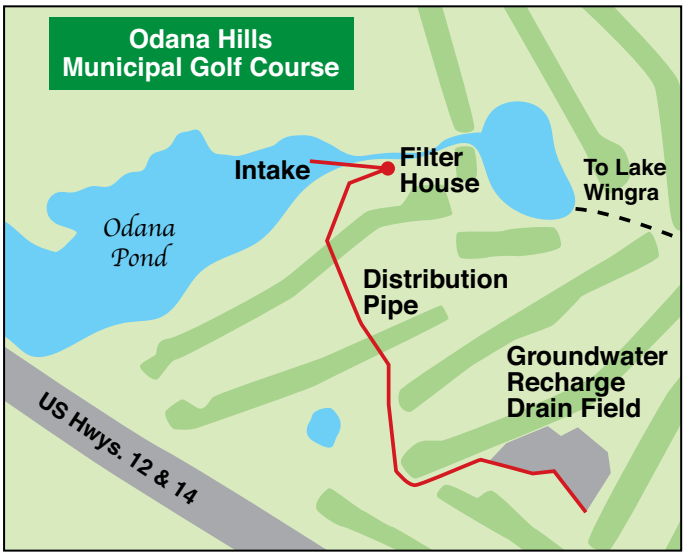
A group of City of Madison, Dane County, UW-Madison, Wisconsin Department of Natural Resources (DNR) and other water experts recommended the following steps to mitigate these impacts:

1. Pump groundwater from a well directly into the Yahara River to compensate for water used by plant operations during low water periods.
2. Collect and infiltrate stormwater runoff to recharge the groundwater aquifer.

Project details

Approximately 20 potential recharge sites were evaluated for feasibility, and the Odana Hills Golf Course emerged as the best site. The golf course has ample space for a recharge system and already has a large pond that collects abundant stormwater runoff from the surrounding developed areas.

During operation, the pond water is filtered, pumped to higher ground and infiltrated into the soil in a specially engineered underground drain field located in a rough area between fairways.



The amount of water withdrawn is about one third of what typically flows through the pond from the upstream watershed. The outfall level of the pond has been raised by six inches, holding back water to be used for infiltration. The median pond level and the shoreline are expected to be the same as before the project. The pond should have more stormwater retention capacity during rainfalls.

A qualified wetlands and biological specialist performed an ecological study of the pond from May through July 2005, including an inventory of aquatic vegetation, wildlife and cultural resources. The study concluded that the project should not have an adverse impact on the habitat or recreational uses of Odana Pond. The recharge project was completed in May 2006.

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Project benefits

The recharge project is expected to:

- Help replenish the groundwater aquifer that supplies Lake Wingra and area springs. This will help re-establish the more natural system that existed before the area was developed.
- Reduce excess sediments and nutrients that currently flow out of the Odana Pond through storm sewers and into Lake Wingra, which will help improve water quality.
- Demonstrate the benefits of stormwater infiltration.

Odana Pond protection

The recharge project has been carefully designed to minimize any impact on the Odana Pond. The following protective steps were incorporated into the project:

- The infiltration system pump automatically shuts off if the pond level drops below a set point in order to minimize impacts to the pond's aquatic organisms.
- A new water control structure helps maintain the level of the smaller pond to the east of the Odana Pond and the waterway that connects the two ponds.

To help the long-term water quality and habitat of the Odana Pond, MGE and Madison Parks Department worked with the neighborhood to make a number of improvements. These include:

- Strategically placed logs for use by turtles, herons and other wildlife.
- Created turtle nesting areas on side of the pond near the golf course.
- Installed a bat house to help control mosquito populations.
- Planted native aquatic plants to improve fish and turtle habitat and water quality in the pond.

Public participation

This project is a cooperative effort among business, government, water resource experts and the public to address water supply and quality issues and to develop techniques to minimize our impact on valuable water resources in the future. It has received the support of the Friends of Lake Wingra, the Friends of the Arboretum and groups dedicated to promoting a healthy lake environment.

MGE held several public meetings to solicit input and answer questions of neighbors and other interested persons about the project. MGE cooperated closely with the City of Madison and the DNR on the final project details. Installation of the groundwater recharge system was completed in spring 2006.

MGE worked with a neighborhood advisory committee to monitor project impacts and to help implement habitat improvements for the Odana Pond.

For more information:

- Visit www.mge.com/about/powerplants/cogen.