



GEMI[®]

Collecting the Drops:

**A Water
Sustainability
Planner**

Case Example

DuPont: Practicing Global Awareness Site by Site for a Decade of Change

Success in water use reduction at a Florida facility exemplifies DuPont's understanding that global change means local action. DuPont has committed to reducing water consumption over ten years by at least 30 percent at its global sites that are located where the renewable freshwater supply is either scarce or stressed. Facilities in affected sites assess their water consumption situations, determine how they can contribute toward the corporate goal, and report water consumption information annually through a corporate environmental plan.

Background

Each person in Florida uses about 120-150 gallons of water per day, and with thousands of people moving to the state each month, public water supply needs in the area of the DuPont plant are expected to double by the year 2025.

Drinking water comes from two sources—surface water and groundwater. Supplying drinking water to a growing state like Florida is a challenge because 90 percent of the state's drinking water supply comes from groundwater, ranking Florida second in the United States for groundwater use. Because groundwater is unlikely to meet the needs of the growing population without causing harm to natural systems, DuPont knew it was time for proactive cooperative programs to ensure a sustainable water supply and find alternative water supplies.

Plant operations

DuPont's Florida plant is a surface mining operation that supplies three main products:

- Titanium ore used to manufacture titanium dioxide.
- Zircon used in ceramics such as china, and foundries for casting molds when pouring molten metal
- Staurolite,[®] a sand-blasting material that is recyclable and has low dusting properties

Groundwater, a vital part of plant processes, serves as the primary method to transport the product in slurry form and to clean the products prior to separation and shipment. In fact, DuPont has long realized this water is a precious natural resource critical to a sustainable operation and to the communities where the company operates. An aggressive water conservation program launched in 1996 limited the plant to consuming 2,078 million gallons of groundwater per year for process needs. Since then, the plant has reduced its groundwater use by 1.5 billion gallons per year (75 percent). The facility's approach comprised three key measures: water conservation initiatives, performance tracking, and community engagement.

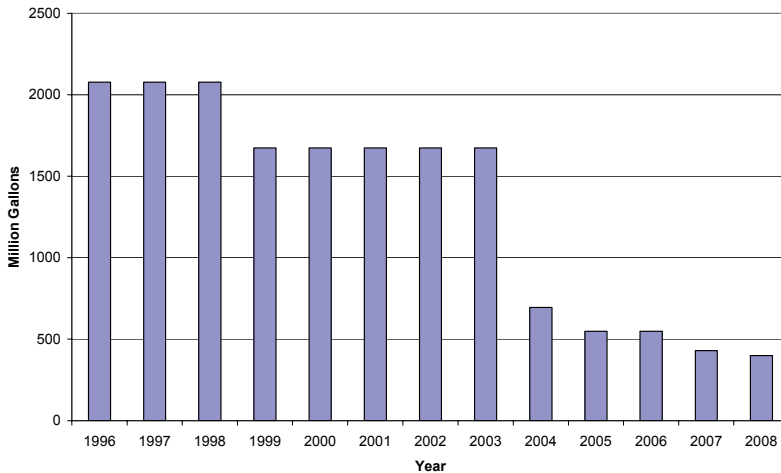
Water Conservation initiatives

It all began with a complete site assessment, development of site water balance and installation of water consumption flow meters in strategic areas. Based on the data collected, several projects were initiated. Water conservation projects included the replacement of groundwater with clean effluent water to areas of the operation that could operate on recycle water. Projects also included upgrading piping and valuing schemes to improve efficiency and eliminate losses. Since 1996, DuPont has invested approximately \$800,000 (USD) to achieve the 75 percent reduction.

DuPont: Practicing Global Awareness Site by Site for a Decade of Change (Cont.)

Performance tracking

The facility tracks water consumption on a weekly and monthly basis. The monitoring system gives a weekly snapshot of the consumption trends. This trend data is input to the site SHE Climate Index, through which it is communicated to all personnel, and serves as a key metric in the site operating “dashboard.” The opportunity for water conservation was leveraged when a Six Sigma project and associated methodology was used in a high water use operating area. The Six Sigma project achieved significant reductions and the control plan continues to sustain the gains.



Community engagement

The Florida plant has taken a proactive leadership role in a local Keystone Height Lakes Advisory Council (KHLAC), made up of concerned citizens, governmental and regulatory agencies, elected officials and industry. The goal of this group is to collaborate in identifying actions that could enhance the drainage and watersheds to local lakes that have depressed lake levels due to extended periods of drought and increased water demands due to population growth. Specifically, the site has been very active in addressing lake low water levels by funding and participating in drainage improvement projects and redirecting over one-half million gallons per day of the site’s treated final effluent to the watershed of the lakes that have depressed levels. The redirection of a portion of the final effluent required studies to first confirm that the redirection of effluent from one watershed to another would not cause any adverse impact to the ecosystems involved. Because the redirection of water involved the transfer of water between two water management districts, DuPont met with both water management districts to allow review of the proposal and obtain support. The proposal gained the approval of the Boards of Directors of both water management districts. Permits were then acquired from the water management districts and Florida Department of Environmental Protection – Industrial Wastewater Section. Citizens, agencies, and newspapers recognized DuPont’s support and involvement. Notably, several newspaper articles have focused on the progress of the KHLAC, work completed, and results of the council’s efforts.

It is important to note that the lakes the council has focused on are part of the recharge system for the Floridian Aquifer, the major groundwater source for the state. Only 15 percent of the state is considered a recharge area for the Floridian Aquifer; thus, work to replenish lake levels in the region also has a positive impact on a natural resource for the entire state of Florida.