Dow Chemical Company

TEEA 2013 Winner: Water Conservation

Saving water is a huge undertaking for a manufacturing facility when it covers 5,000 acres and includes 65 production plants and research facilities. Located at the end of the Brazos River in Freeport, the Dow Chemical Company's Texas Operations relies heavily on freshwater—approximately 100,000 gallons per minute from the Brazos River—as well as saltwater. Texas' 2011 drought and the company's significant water needs motivated Dow to rethink water availability issues and the need for water conservation.

In November 2011, Dow hosted a Water Summit with representatives from other Texas Dow sites and their corporate office in Michigan to brainstorm project ideas for supply, demand, and storage. To address the more than 200 ideas that resulted from the summit, Dow designated a water strategy director and appointed a steering team to reduce freshwater usage by 10,000 gallons per minute (gpm). In comparison, the average family of four uses about 12,000 gallons per month.

The site also initiated a facility-wide contest to raise drought awareness and identify conservation opportunities. The contest received 37 water conservation ideas that were scored on conservation potential, feasibility, and ease of implementation. The winning project, installed piping by the Trichlor facility, reduced water usage by approximately 400 gpm. In addition, Dow held a Water Symposium in May 2012 with the Brazoria County Petrochemical Council to share water conservation strategies with area municipalities, the local water authority, and other petrochemical companies.

Dow identified and implemented several water conservation strategies as a result of its activities, including:
- Recycling the once-through cooling water at one of the chlorine plants and an air compressor station. Savings: 1,300 gpm
- Installing piping to use seawater for cooling at Power Plant 6. Savings: 200 gpm continuously and

200–600 gpm during startups and shutdowns
- Improving the operation of the Demin Water Plant resin bed and modifications to a reservoir. Savings: 1,600 gpm
- Collaborating with the city of Lake Jackson to re-use its treated wastewater. Savings: 2,500 gpm
- Installing piping, valves, flow meters, and other instrumentation to recycle soft water from a propylene oxide plant to the river water header when only two trains are running. Savings 3,000 gpm

Dow’s collaboration with its employees, local governments, and peers helped the Texas operation exceed its goal by reducing water consumption by 10.6 percent. Additional water-conserving projects are currently being engineered or constructed.