



GEMI[®]

Collecting the Drops:

**A Water
Sustainability
Planner**

Case Example

Texas Instruments Incorporated: Offsetting Water Consumption with Strategies for Wastewater Reuse

In an effort to reduce city water consumption, Texas Instruments (TI) turned to water reuse as an effective water optimization strategy that could be employed at all of the company's manufacturing sites. The reuse of wastewater requires the segregation of effluent from water that can be recycled, the collection of reusable water, water treatment, if needed, and finally the dispersion of reusable water to onsite "end users." These "users" include cooling towers and more often, wet air scrubbers.

At TI, a dependable water source is needed to operate wet air scrubbers and other water using equipment. Because such systems are critical to manufacturing and may require a high volume of water to operate, it is an opportune area to reduce consumption by reusing water. However, the implementation of such a water optimization strategy requires careful planning and evaluation, including the identification of an adequate water source, effluent segregation challenges, water treatment and finally, a back-up source.

First of all a wastewater source that meets the criteria of a site's needs must be identified and related challenges should be addressed. After a source with sufficient volume has been identified, the wastewater stream will need to be evaluated to ensure that the installation of a water collection system would be cost effective. If additional segregation is needed, some troubleshooting will need to be done at the front end of the water reuse system planning.

It may be possible to segregate small portions of an unwanted material from the potential wastewater source to eliminate problems that could occur in the scrubbers, such as plugging or a chemical known to assist in biological growth in the scrubber that might also interfere in the operation. It is sometimes possible to eliminate an issue during the collection system design. This potential remedy should be explored when the evaluation is being conducted.

After ensuring that there is available volume and determining if there are any collection and segregation issues that need to be addressed, the wastewater stream may need treatment such as neutralization, filtration or other treatment. In some situations the wastewater may be used directly from down stream of an existing wastewater treatment plant, and then the required volume is simply sent to the scrubber for use after installing a lift station. A final filtration may also be employed to remove additional solids contained in the wastewater stream. If a wastewater recovery system contains a nutrient, precautions or procedures might be needed to minimize biological growth.

This reuse strategy should also include a method to provide a back-up source of city water in the event that the wastewater source is temporarily lost. This back-up source should be automatic and configured so that the potable water system cannot be contaminated.