

CASE STUDY :



CHEM-TEX LABORATORIES INC.

Location:	Concord, N.C. (Cabarrus County)
Industry:	Chemicals and Allied Products (SIC Code 2800)
Pollution Prevention Application:	Water Conservation
Water Reduction:	20,000 gallons per day/60 percent reduction
Annual Savings:	\$35,000 - 40,000 annually
Contact:	David Bilbro, vice president, (704) 795-9322

BACKGROUND

Chem-Tex Laboratories, a producer of specialty chemicals in Concord, N.C., requested the assistance of the N.C. Division of Pollution Prevention and Environmental Assistance (DPPEA) to assess various alternatives for reducing its water usages following the institution of mandatory water use restrictions by the City of Concord.

The plant uses about 26,000 gallons per day of city water, a major portion of which is used as noncontact cooling water. The plant operates 10-12 hours per day, five days per week.

The plant has eight water-jacketed reactors varying from about 165 gallon to about 5,500 gallon capacities. A couple of the reactors are equipped with solenoid valves in the cooling water lines but most of the cooling has been done with the lines wide-open. The plant is also equipped with a 10-ton chiller which cools two storage tanks.

Based on a four-month average, the plant uses about 26,500 gpd for process purposes. The company estimates about 4,000 gpd end up in the products and about 3,000 gpd are used to "boil out" the reactors. The effluent meter shows about 16,800 gpd go to the sewer, with about 2,600 gpd remaining used in the 150 HP boiler and for miscellaneous purposes around the plant. The cost of the incoming water at this average rate would be about \$23,400 per year, and the sewer charge would be about \$25,900 per year, for a total water/sewer bill of about \$49,300 per year.

WATER REDUCTION ACTIVITIES

Chem-Tex is installing two new tanks, pumps, and a small cooling tower to cool and reuse the water formerly sewered after cooling the reactions. The plant also plans to recycle the water used to clean-out the reactors.

Other alternatives considered included installing additional control valves on the reactors, geothermal cooling of the water, and drilling water wells on the plant property. Their management decided water conservation was the best long term approach. It took a surprisingly small cooling tower and tank system costing less than \$15,000 to produce these savings, and thus will also produce a good financial return on the invested capital.

WATER CONSERVED

Chem-Tex's water conservation program will reduce the use of water by about 60 percent (by about 20,000 gpd), and also reduce the plant's waste water effluent to the Concord Waste Water Treatment Plant by about 85 percent.

The savings should be between \$35,000 and \$40,000 per year.

