

## Project:

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Upgrade Process Chilled  
Water System

## Client:

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Nalco Canada Co.  
Burlington, Ontario



## Description:

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Nalco operates a plant in Burlington, Ontario that produces industrial chemicals, primarily for use in the treatment of boiler, cooling, and wastewater. The plant contains some tanks used in the chemical production process, equipped with water jackets for the purpose of both cooling and heating the contents.

The facility was equipped with a chilled water system of nominal cooling capacity 61.5 Tons. Due to improvements in the production process, the batch cycle time of the process had reduced from 10 hours to 6 hours. This had resulted in the chiller being unable to maintain the desired temperature in the chilled water tank.

The current system is provided with a 67,000 US gallon capacity chilled water storage tank to minimize temperature fluctuations in the chilled water circuit. The tank content is circulated through the system approximately every 2 hours.

Nalco required one or more new chillers to be added to the existing system, and that the present chiller remains installed as a standby. The new chiller(s) would be installed in a new extension to the existing chiller.

The system is provided with a roof mounted cooling tower. The requirement was to install chilling capacity that would match the capacity of the existing cooling tower. This capacity increase required the installation of larger piping between the condenser of the chiller and the cooling tower to enable increased circulation flow.

Services provided by Byrne Engineering included:

- Review of the plant process design
- Establish required chilled water system capacity
- Determine the extent of modifications required
- Determine optimum type of chiller
- Establish a capital budget for the project
- Lay out equipment, building plan, major piping runs between new chiller and present system
- Design new building extension about 5m x 5m plan
- Design foundations for chiller and building
- Prepare specifications for chiller, piping, pumps, valves, and for construction of building extension