



International
Canada

**Water
Treatment**
Membrane and UV
Technology

Client

City of Greater Sudbury

Location

Sudbury, Ontario, Canada

*Winner of 2005
Award of Merit from
the Consulting Engineers
of Ontario*

David Street Water Treatment Plant

The City of Greater Sudbury (City), with a population of over 165,000, includes the urban area of Sudbury and the surrounding outlying areas. The David Street Water Treatment Plant (WTP) services the southwestern half of the urban areas and supplies water to the Ellis Reservoir. Ramsey Lake, which supports residential and recreational usage, is the plant's source water.

Treatment processes at the existing plant consisted of primary disinfection (chlorine), Microstrainers (which purify by screening the water), lime addition (for pH adjustment), secondary disinfection (chlorine), polyphosphate addition (to inhibit corrosion), and fluoridation (to help prevent dental cavities).

CH2M HILL designed a 40-ML/d ultrafiltration membrane and UV disinfection treatment facility for the David Street WTP. The existing David Street WTP had provided water to Sudbury residents for over a century.

The new treatment process includes oxidation (using potassium permanganate) of soluble iron and manganese to form insoluble particulates. Particles are then filtered through primary ultrafiltration membranes. As a back-up to the membrane's physical removal, UV treatment will provide a second barrier to pathogens and viruses. A secondary membrane process has been included to treat the reject water from the primary membranes, which results in an overall plant recovery of 99 percent. Chlorination is also used in the plant for virus disinfection and for maintaining a residual in the distribution system.

The primary purpose of the retrofit and upgrade at the David Street WTP was to ready the plant to meet more stringent requirements inherent in Ontario's new Drinking Water Protection Regulation, thereby improving water and wastewater management, enhancing water quality, increasing community safety, and encouraging innovation.

Supply water from Lake Ramsey will be filtered using Zenon's ZeeWeed 1000 technology. Wastewater produced from this process will then be sent to a second stage, where it will be filtered by the ZeeWeed 500C. This two-stage design makes the Sudbury plant one of North America's most sophisticated plants in terms of water utilization.