

Brčko Drinking Water Treatment Plant

Application: Ultrafiltration with enhanced coagulation for iron and manganese removal

Capacity: 2.6 MGD (9,840 m³/day)

Location: Brčko, Bosnia-Herzegovina

Commissioned: June 2003



Challenge

Seriously damaged during the Balkan War, the City of Brčko is still recovering from the cultural and economic wounds sustained during the battles. Restoring clean, safe water supplies for residents and industry was among the first challenges that the city faced as it struggled to rebuild and revitalize the once flourishing economic hub.

Like many communities, Brčko was relying on groundwater sources to supply its water needs. But the limited supply of groundwater was hardly enough to serve the 42,000 people living in the city, let alone the combined population of 88,000 in the newly created Brčko District.

To compound the problem, Brčko has no water treatment, only a chlorination system at the pumping station used to disinfect the groundwater.

City officials considered drawing raw water from the nearby Sava River; however, the heavily polluted water would require additional treatment to make it safe for citizens.

The Solution

After a variety of solutions were considered, the Water Utilities Department of the Brčko District decided on ZENON Membrane Solutions, part of GE Water & Process Technologies, to provide a skid mounted unit. Scheduled to be deployed in two phases, GE's containerized ZeeWeed* solution was selected primarily for its short implementation time, expandable capacity to include various water sources, and the safe, high quality drinking water that the system can produce.

The ZeeWeed system incorporates oxidant and coagulant addition into the water treatment process to enhance the removal of iron, manganese, color and organic matter. The patented ZeeWeed immersed membranes ensure reliable, high quality drinking water at all times by removing all suspended solids, turbidity, algae and parasites such as *Giardia* and *Cryptosporidium*.

The improved infrastructure of Brčko District is an important step toward reviving economic growth and quality of life for all businesses and residents. By incorporating GE's UF technology, Brčko District has a new source of drinking water from the Sava River, and relieves the strain on insufficient groundwater supplies and can confidently move forward with their plans to rebuild their lives and return to prosperity.

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e-mailing custhelp@ge.com.

Global Headquarters
Trevose, PA
+1-215-355-3300

Americas
Watertown, MA
+1-617-926-2500

Europe/Middle East/Africa
Heverlee, Belgium
+32-16-40-20-00

Asia/Pacific
Shanghai, China
+86 (0) 411-8366-6489

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Process Overview

The plant currently includes one ultrafiltration membrane train producing up to 2.6 MGD (9,840 m³/d) of drinking water. The second phase of the drinking water treatment plant will add two additional trains for a total of three flocculation tanks and three ZeeWeed UF process trains, bringing the total capacity of the plant to 10.5 MGD (39,740 m³/d).

Installation and expansion at Brčko is relatively easy due to the skid-mounted, 46-foot (14-meter) long containers that house the equipment. Each container shipped is a complete assembly to simplify field installation. Three such containers make up each train. A flocculation tank is the first container with flash and slow mixing zones. The second container holds the ZeeWeed membrane cassettes, and the third tank houses the process equipment and electrical room. A clean-in-place tank is also on-site and is large enough for both backpulse and maintenance cleaning operations.

