

# CASE STORY

## Drinking water treatment NAKHCHIVAN DRINKING WATER



The Nakhchivan Autonomous Republic is part of Azerbaijan yet isolated from the main part of the country, being surrounded by Armenia and Iran. Its capital - the city of Nakhchivan, is home to about 90,000 people.

When Azerbaijan gained its independence in 1991, Nakhchivan, like many cities in the post-Soviet region, inherited a long-neglected, obsolete water distribution and wastewater collection system of rusty, leaky pipes. Untreated wastewater was pumped into the Aras River. Many new houses relied on cesspools. Drinking water was contaminated.

In order to ensure that Nakhchivan city has a safe and sustainable water supply and sanitation system a \$228 million project was launched.

Water Treatment System for Nakhchivan City is supplied by AquamatchTurkiye on turnkey bases in 2012. Water source is a dam and raw water TDS is 800 mg/lit. The system consists of pre-filtration, nanofiltration (NF) and ozonation stages. Total product water capacity is 1700 m<sup>3</sup>/h with the TDS less than 300 mg/lit.

Dam water is taken from infiltration galleria and fed to raw water tank. Raw water is pumped to Bernoulli Filters in order to protect nanofiltration system membranes down to 100 micron. Filtered water is pumped to the NF systems, consisting of 4 parallel trains with the total capacity of 4 x 160 m<sup>3</sup>/h for Babek Rayons and 3 parallel trains with the total capacity of 3 x 313 m<sup>3</sup>/h for Serur Rayons.

The NF system is one of the reliable techniques in order to supply drinking water from relatively high TDS water. Bacteria and some portion of total dissolved solids are removed by NF membranes.

Currently there are 5 different ongoing projects in different rayons of Nakhchivan with the same concept.

### Facts and figures

Customer: Nakhchivan AR

State Amelioration and Water Management Committee

Location: Nakhchivan, Azerbaijan

Application: Pre-filter NF-system

Filter model: 3 x BSG 150 and 4 x BSG 150

Filtration: 0.1mm

Operating flow: 3 x 313 m<sup>3</sup>/ and 4 x 160 m<sup>3</sup>/h

Operating pressure: 2 bar g

Design pressure: 10 bar g



**BERNOULLI**  
SYSTEM