

Kazak utility cuts water and energy losses

A gigantic Hollywood-style sign reading “KAZAKHSTAN” stands overlooking Oskemen, the principal city of the country’s eastern province. But the resemblance to the American dream destination ends there, obscured behind billowing clouds of smoke from the chimney stacks associated with the local industrial park.

It’s geography has rendered Oskemen particularly attractive to industry. The area surrounding the city is rich not just in metals but also in water, thanks to the confluence of the Irtysh and Ulba rivers. However, industrial boom times were threatened a decade ago when the town’s water supply system began to crumble because of outdated equipment. It was an extreme case of deferred maintenance.

TOPIC:
Water utility

LOCATION:
Kazakhstan

COMPANY:
Oskemen Vodokanal

Years of trouble

Back in 2001, when current director Erzhan Aubakirov became chief engineer for Oskemen Vodokanal, the state-run managing body for the city’s water facilities, the company couldn’t make ends meet. “It was nothing but debts here, and had been for years,” Aubakirov recalls.

Ageing equipment, some of which even predating Kazakhstan’s days as a Soviet republic, needed to be replaced, but Oskemen Vodokanal could do nothing about it. The company had to keep water tariffs low to make the region attractive for investors. No funds for modernisation could be raised without external support. It was a “Catch-22” situation: there was no way to start a renovation, but the price of keeping the status quo was getting too high. Of all the water extracted in 2008, nearly half was wasted in the outdated processes before it could even reach the users.

New equipment

In 2009, the year Aubakirov took the reins of Oskemen Vodokanal, the state launched modernisation programmes for public utilities and networks. “Replacing old pumps was one of our key modernisation goals,” Aubakirov says. “One of the pumps in use was manufactured in 1898, and another was made in 1902.”

The tender was announced, and proposals from bidders started to come in. Grundfos’ local office struck the winning deal. One provision was that the new pumps would arrive before the entire price of the deal was paid. The balance would be paid over the course of a year, financed in part by the savings released by reduced energy costs. The new equipment was installed, and the improvement was immediate. “It’s like a new-generation mobile phone,” Aubakirov says. “You just switch it on and it starts working.”

Lower bills

Many of Oskemen’s water intake facilities are located in the valley along both the Irtys and Ulba rivers, which means water must be pumped out of the valley. “We consume a lot of energy,” Aubakirov explains. “We pump water from 40-metre-deep wells and keep pumping it uphill to consumers.” But the Grundfos equipment significantly lowered the energy costs, he says. “In 2013, overall power savings on all facilities operating on Grundfos gear was 26.5 percent, or 30 million Kazakh tenge [about US\$200,000],” he says.

In fact, the company’s overall power consumption is lower than it was in 2010 even although more facilities have been launched. And the company is taking less water from the wells, thanks to reduced losses. In 2012 the amount of water extracted was some 30 percent less than in 2008, according to the company.

Rebirth of a facility

The Elevatorny water intake facility, which serves some 30,000 people, became the first station to be completely revamped with Grundfos equipment. The facility had been operating since 1974, when the city’s development moved southwards, to the left bank of the Irtys, farthest from the industrial smokestacks. Elevatorny’s modernisation took about two years and was finished in 2011. “Only the old walls remain now,” Aubakirov says with satisfaction. The revamp involved 11 new submersible pumps in the water wells, as well as two double-entry pumps and a new water treatment system that reduces the dangers of gas chlorine water treatment. The staff can check the water treatment through a small window without resorting to gas masks. “It’s all gone now – all the checks by emergency-situation agencies and state-standards monitors,” Aubakirov says. “There’s no need for that now.”

Future improvements

After the modernisation, Oskemen Vodokanal finally became profitable. For Aubakirov, however, the company's achievements to date are just the start. Further modernisation plans include replacing the town's plumbing network under a governmental investment programme for 2013–2015. The programme states that some segments of Oskemen's plumbing system are completely worn out. Aubakirov also wants to introduce the idea of water conservation to town residents, who have been reluctant to install water meters. "In the past, no one cared about efficiency or calculated anything," he says. "It was a mistake of the communist economy. In the end, Aubakirov says, modernisation is not just about accounting. It's about a sustainable water supply and a better environment". "After all," he says, "it's all done for people.

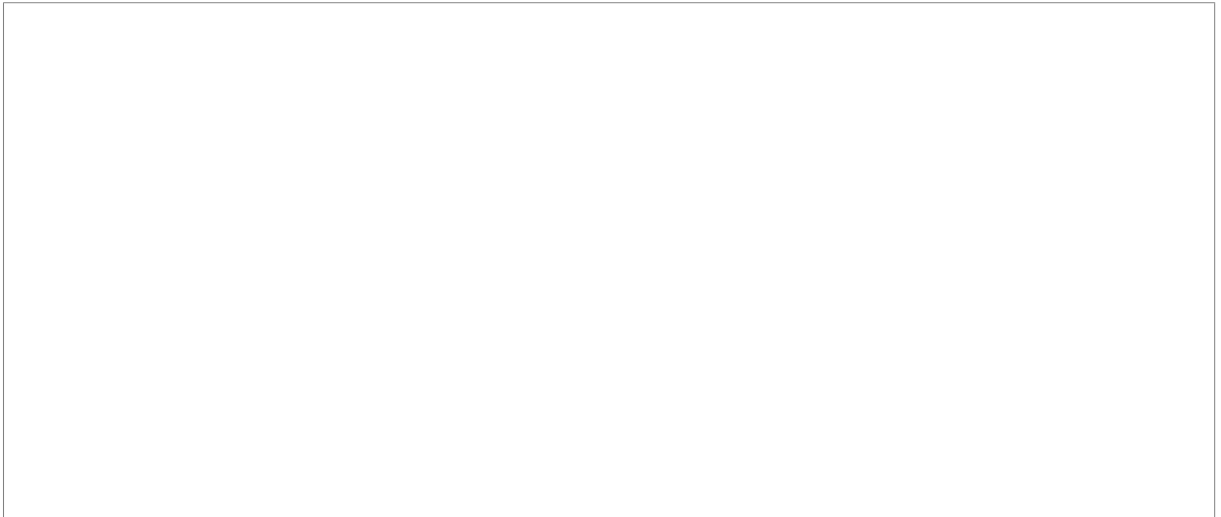
Oskemen's modern Grundfos pump systems

Grundfos supplied the following equipment for the Elevatorny water intake:

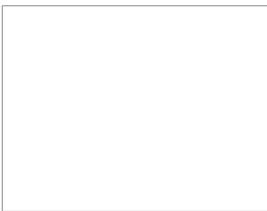
11 SP 215 water extraction pumps, 37 kW 2 Selcoperm 1000 hypochlorite disinfection systems 2 DIA (Dosing Instrumentation Advanced) measuring amplifier/controllers 6 DDI digital dosing pumps 5 HS350-250-630 second lift station pumps, 315 kW

[Click here for more information on Grundfos optimised water solutions](#)

Additional Images



Related Products



HS HORIZONTAL SPLIT CASE PUMPS

Split case, single-stage, non-self-priming, centrifugal, double volute pumps



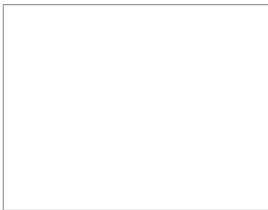
SP SUBMERSIBLE GROUNDWATER PUMP

Submersible pumps for irrigation, water supply, pressure boosting and dewatering.



SELCOPERM 125 - 2000 - ELECTROCHLORINATION SYSTEM

Safe and simple electrolytic production of hypochlorite solution for disinfection applications



DIGITAL DOSING, DDI DIAPHRAGM DOSING PUMP

Grundfos DDI pumps provide Digital Dosing from 75 ml/h up to 150 l/h with real setting of the flow rate.