



# Water Treatment Plant in Nová Ves u Frýdlantu nad Ostravicí

## General Information

- WTP was put into operation in 1969. It was fully completed in 1973.
- Thanks to extensions in its structures and technologies its capacity has been gradually increased up to the current capacity, 2,200 l/sec.
- Raw water is taken from the Šance Dam in the Beskydy Mountains. It is a part of the Ostrava Area Water Network which is operated by Severomoravské vodovody a kanalizace Ostrava.
- Drinking water is supplied to almost 60 municipalities around Frýdek-Místek, Karviná, and Nový Jičín, to some municipalities around Ostrava as well as to certain border regions in Poland (Jastrzębie-Zdrój).
- In 1994 a small water power plant was put into operation in the raw water conduit. It was completely reconstructed in 2019: now a two-chamber CINK facility covers almost fully the electricity consumption of WTP.

## History

- Along with construction of WTP, a dam was built along the Ostravice River in the Šance valley upstream the site of the same name, Ostravice, close to Staré Hamry. At the same time, water conduits and water reservoirs were built.
- In July 1969, the initial water take-off from the Šance Dam reached 80 l/sec. That temporary operation lasted until May 1971 when a new water treatment facility – microfilters – was installed in the system which was not fully completed yet. This increased the water treatment capacity by 300 l/sec.
- In 1973, a trial operation was launched with eight open sand filters, a chemical dosing facility, and other units. The capacity increased by another 900 l/sec. In December 1983 the next improvement was completed and the capacity reached 1,800 l/sec. At the end of 1986, the extended water treatment plant was put into operation, the final capacity reaching 2,200 l/sec.

## Water supplies for the region

- The raw water flows by gravity from the Šance Dam. It can be taken from five height levels.
- Then it flows by gravity and by some pumping through two water conduits which are parts of the Beskydy Group Water Network. It flows through water reservoirs to consumer points.
- The main water conduit is laid from WTP through Baška and Bruzovice, supplying municipalities in/around Frýdek-Místek. In Nové Dvory u Frýdku, there is a branch pipe which leads to the Bludovice water reservoir. That branch pipe supplies water to Havířov. Another pipeline from that branch supplies water to Karviná.
- Considerable quantity of water is pumped from WTP towards Čeladná. Then, the water flows by gravity to a water reservoir in Červený Kámen nad Kopřivnicí.
- There is a water conduit from Bruzovice to Krmelín. This makes it possible to supply water to some parts of Ostrava either from the Kružberk Dam or from the Šance Dam. In Lískovec u Frýdku-Místku there is a pumping station in this water conduit. It can be used to re-pump the water from the Krmelín water reservoir to the Bruzovice water reservoir. This means that the Beskydy Mountains water system is connected with the Jeseníky Mountains water system. Such solution provides uninterrupted water supplies in case of emergencies and/or failures.







## Water treatment

- In case of increased turbidity, the raw water is treated in lamella sedimentation tanks and open sand fast filters. Aluminium sulfate or PAX is supplied as a coagulant through the filters. Chlorine dioxide is used for raw water pre-oxidation.
- Lime in a lime slurry is fed into the treated water in order to increase its pH. Gaseous chlorine and chlorine dioxide are provided for disinfection of the drinking water. Sludge from waste waters downstream the filter washing facility are thickened in two horizontal sedimentation tanks using a polymer flocculant. Then, they are dewatered in a decantation centrifuge.



## Ostrava Area Water Network

is the key water production and distribution system which supplies drinking water in the Moravian-Silesian Region. Its pipelines are mostly made from steel, the length of the water supply system being 500 km. In this network, there are three water treatment plants which all together treat 4,850 l/sec. Raw water for treatment is supplied from the Kružberk, Morávka, and Šance Dams which are operated by a state-owned enterprise, Povodí Odry. The capacity of 111 water reservoirs is 301,256 m<sup>3</sup> of water.

## Reconstruction

- In 1996, a new facility was put into operation: it produces and doses the chlorine dioxide which can be fed into the raw water or treated water.
- In 2000, the filter fittings were reconstructed and an automated system was put into operation: it controls automatically regeneration of the filters.
- In 2002, the aluminium sulfate dosing facility and the lime hydrate unit were reconstructed and automated. An automated control system was installed for the entire water treatment plant.
- In 2009, a spraying unit was installed in the chlorine system. It will trigger if there is chlorine leakage in the chlorine storage room.
- In 2018, the sludge system was fully reconstructed and put into operation. A centrifuge was installed there.
- In 2023, another reconstruction was completed in WTP: a half of units in the filter hall were replaced, a new control system was installed, the machine room for Cl<sub>2</sub> and ClO<sub>2</sub> dosing was reconstructed, and the small water power plant was completely refurbished.

