References

Old water intake plant upgraded to modern version



Uponor involvement

- Uponor Reservoir Tank
- Uponor Alkalisation Tank

Old water intake plant in Suomussalmi upgraded to modern version – Uponor's solution significantly improved occupational safety

The Hietasärkä water intake plant is part of the Suomussalmi water supply system, the task of which is to ensure the sufficiency of clean drinking water for the needs of municipal residents. Corrosion damage to the water supply network was previously prevented with lye, but due to safety risks, it was replaced by a chemical-free method. At the same time, an extensive overall renovation was carried out at the water intake plant.

Project Facts:

Location	Completion
Suomussalmi, Finland	2024
Building Type	Product systems
Municipal	Potable water

The quality of drinking water is considered good at the Hietasärkkä water intake plant, but the pH of the water must be slightly raised due to corrosion risks in the water supply network. Lye treatment is, if properly dimensioned, one effective method for this purpose, but it was wanted to be abandoned for safety reasons.
"Handling liquor is especially risky when working alone. In addition, storing raw liquor at the water intake plant increases environmental risks. We replaced liquor with limestone alkalization, which enables us to control the pH level of the water without the hazards associated with handling chemicals," Jukka Malinen explains. During the renovation project of the Hietasärkä water intake plant, he worked as the water supply manager of Suomussalmi.

In practice, the pH is currently raised by running water through a limestone mattress located in the alkalizing unit. "In addition, during the project, it turned out that the electrical and automation systems were at the end of their life cycle, and spare parts were impossible to find. This led to the decision to carry out an extensive overall renovation of the water intake plant," Malinen adds.

Tailor-made concept solution

The project started in January 2024, and Uponor, selected as the main contractor, took responsibility for both the project entity and the deliveries of the alkalisation tank and reservoir tank.
Even before the tendering process, Uponor's experts were involved in preparing the preliminary cost estimate and schedule. What was special about the project was that Uponor was also involved in designing the solution itself from the very beginning.

"Of course, we could have ordered limestone alkalinization plans separately from consultants, but it quickly became clear that Uponor has its own designers, with whom we were able to make plans on site and obtain customized dimensioning solutions," says Jukka Malinen.

Reinforcement came from Ari Vaarala, who acted as project manager taking care of the renewal of the electrical and automation system and pipeline renovation. Another significant change was the conversion of the old water intake plant into a pressure boosting station. "Previously, water was pumped directly from the borehole, but now it is circulated through the alkalisation tank and the reservoir tank to the water intake where a new pump system has been installed. If necessary, alkalization can also be bypassed," he says.

Financial savings are also expected

The project was completed on schedule in June 2024, which according to Jukka Malinen was thanks to the excellent cooperation between Uponor and the project manager. "Schedules were constantly drawn up in cooperation. For example, groundworks were completed commendably before the equipment deliveries in the alkalizing area," he says with satisfaction.

The buffer volume of one hundred cubic metres of the reservoir tank together with the possibility of bypassing the alkalizing tank ensure the continuity of the water supply even during maintenance. This opportunity was already utilised during the renovation project. "The residents of Suomussalmi didn't even notice the extensive renovation thanks to it," Vaarala says. "We also installed a fire hydrant on the wall of the pressure boosting station to speed up the supply of water in case of a crisis."

The customer was responsible for the pipeline renovation as its own work, which, according to Vaarala, made commissioning easier. He also seems satisfied with the use of the negotiation method, as it helped to make use of local know-how.

Although the project required significant investments, they are expected to pay for themselves in the future.
"Alkalizing limestone is a more cost-effective option in the long run, as liquor prices have risen significantly in recent years. In addition, the maintenance of the water intake plant becomes easier, because limestone alkalization does not require as complex a mixing process as lye," Jukka Malinen explains.

Installation of Reservoir tank and Alkalisation tank









> The residents of Suomussalmi didn't even notice the extensive renovation thanks to it (Reservoir tank)," Vaarala says.

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