PROJECT REPORT

Töging
Töging-Jettenbach Power Plant

Data and facts

Company	PORR GmbH & Co. KGaA
Type	Foundations
Runtime	10.2018 - 12.2022
Principal	Verbund Innkraftwerke GmbH (Inn Power Plant consortium)

Project report online

www.porr.at

Special civil engineering works for the main excavation pit of the new hydroelectric power station

In addition to the new power plant in Töging, the overall project also comprised the construction of a new weir in Jettenbach, the upgrading of the Inn Canal, as well as works on the Fraham and Jettenbach dams. According to the client, the refurbishment of the power plant was intended to increase output by around 25 per cent. The planned electricity generation was stated as equivalent to the estimated annual electricity consumption of around 200,000 households. To allow a larger volume of water to be discharged into the Inn Canal, the reservoir level was raised by 70 cm.

Main excavation pit for the new power house

A key focus of the specialist civil engineering works was the construction of the central excavation pit for the new power house. The geological conditions at the site required an adjustment to the originally planned construction concept. An alternative variant for the excavation pit construction was therefore developed as early as the tender phase. This involved a combination of cut-off walls constructed using a single-phase method and internal bored piles.

Diaphragm walls constructed using a single-phase process

In the chosen construction variant, the diaphragm walls were constructed using a self-hardening grout consisting of bentonite, cement, granulated blast furnace slag and blast furnace slag. During excavation, the grout stabilised the open slot. Once the work was completed, the material hardened to form continuous cut-off walls in the subsoil. As the cut-off walls did not perform a load-bearing function, bored piles were installed within the wall. These formed the structurally effective elements of the excavation structure.

Construction to a depth of 72 m

In Töging, the cut-off walls reached a depth of up to 72 m. Excavation times of up to 24 hours per slot section were planned for its construction. As these constraints exceeded the depths and excavation times previously employed, the method was investigated in a large-scale trial in Himberg prior to construction. The results of this trial formed the basis for determining the construction parameters of the main excavation pit.

Bored pile walls and gusset reinforcement using the jet grouting method

In the course of further planning, parts of the originally planned overlapping bored pile walls were replaced by spaced bored pile walls. The gaps between the piles were reinforced with gussets, which were installed using the jet grouting method. This combined the bored pile walls and jet grouting elements into a single shoring and waterproofing system. The implementation was adapted to the boundary conditions encountered during the excavation of the main excavation pit.

Water drainage using 60 dewatering wells

The water drainage concept was also adapted during the course of the project. Instead of the 100 dewatering wells originally planned, dewatering was carried out using 60 wells. The wells formed part of the dewatering concept for the central main excavation pit and were tailored to the actual subsoil conditions and groundwater conditions at the site.

Basis for the new power plant construction

The main excavation pit combined various special civil engineering techniques. These included cut-off walls constructed using a single-phase method, load-bearing bored piles, dissolved bored pile walls, DSV gusset plate reinforcements and dewatering. The excavation of the construction pit created the conditions necessary for the construction of the new power station in Töging. The sealing, shoring and dewatering measures carried out formed the basis for the subsequent construction work.

Impressions

Image notes

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Shoulder to shoulder for success

Execution in Jettenback and Töging was carried out by a team of PORR specialists from various departments.

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Do you have questions about the project or would you like to learn more? Feel free to contact us for further information.

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