

Media Release

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Misoxer Kraftwerke: Preventive renovation of the Isola dam

Preventative renovation will be carried out on the Isola dam belonging to the Misoxer Kraftwerke (Canton of Grisons) this winter. In order to relieve the stresses on the inner dam wall that occurred through concrete swelling a cut will be made in the dam wall. This is a globally proven method. The work is expected to be completed next spring. The safety of the dam is ensured at all times.

The Isola dam on the San Bernardino Pass was built between 1957 and 1963 as an arch gravity dam. Regular measurements during the last 40 years indicate that there has been a slight increase in the concrete volume of the dam. The concrete swelling (alkali aggregate reaction AAR or sulphate attack) is a common and well researched worldwide phenomenon that can be attributed to a chemical reaction between cement stone and concrete gravel.

The reason for the concrete swelling in the Isola dam wall is the sulphate aggregates in the concrete that are common in the region of San Bernardino. These aggregates were used when the concrete was manufactured. Since its construction, irreversible deformations in the 60-mm range on the water side wall have been detected in the middle of the dam owing to growing internal stresses. This reaction has been monitored for years with an extensive measurement system and analysed in expert reports for the attention of the federal supervisory authority, the Swiss Federal Office of Energy (SFOE). The safety of the dam is ensured at all times, despite the swelling.

Making a cut in the dam wall to relieve stress

To reduce the stresses occurring through swelling, a narrow section of about 30 mm will be removed from a wall section with wire saw cuts. The space gained will allow the concrete to expand and relieve stresses. The gap will be refilled. The process is based on proven, state-of-the-art technology that has been successfully applied on many dams in Switzerland and around the world.

The entire process will be monitored with measurements. The work will be carried out during the winter when the water level is low. Erection of the complex construction site installations will begin in mid-August. The first drilling will take place in the fall on the dry side of the dam. The actual cutting and renovation work will begin in mid-January 2020 and is expected to be completed by the spring of 2020. The total costs amount to about CHF 2.5 million.

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Additional information

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