

Rapides-Des-Îles Main Spillway - Rehabilitation

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Abstract : As part of the project to rehabilitate the main spillway ("main") of the Rapides-des-Îles development in 2019, it was noted that there is a difference between the water level of the intake gauge and the level measured at the main spillway. The Rapides-des-Îles Generating Station is a Hydro-Québec hydroelectric generating station and dam located on the Ottawa River in the Abitibi-Témiscamingue administrative region of Québec. This plant, with an installed capacity of 176 MW, was commissioned in 1966. During the start-up meeting held at the site in May 2019, it was noticed that the water level upstream of the main spillway was considerably higher than the water level at the powerhouse intake. Measurements showed that the level was 229.46 m, whereas the normal operating level (NOL) and the critical maximum level (CML) used in the design were 228.60 m and 229.51 m, respectively. Considering that the water level had almost reached the maximum critical level of the structure despite a flood with a recurrence period of about 100 years, the work was suspended while the project was being decided. This is the first time since the Rapides des îles project was commissioned that a significant difference in elevation between the water level at the powerhouse (intake) and the main spillway has been observed. Following this observation, the contractor's work was suspended. The objective of this study is to identify the reason(s) for this problem and find solutions. Then determine the new upstream levels at the main spillway at which the safety of the structure is ensured and then adjust the engineering of the main spillway in the rehabilitation project accordingly.

Keywords : spillway, rehabilitation, water level, powerhouse, normal operating level, critical maximum level, safety of the structure

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