Song Loulou Dam

Detailed Concrete Diagnostics

Transforming your infrastructure into living assets

General View

Cracked Concrete Siding

Engineering Services	Monitoring Services
Platform Solutions	Mapping Services

Song Loulou
Cameroon

Started in 2018
6 months

The State of Cameroon
ENOE

Key figures

Capacity 384 MW

Contract Value 286 k€

Opened in 1981

Concrete Cracking

The Song-Loulou hydroelectric power plant facility, located on the Sanaga River, is the largest in Cameroon.

The dam is showing age-related signs of deterioration with cracks affecting the spillways and buttresses. Sixense was commissioned by ENOE to determine the origin of these cracks and provide specialist advice on possible future degradation of the structure.

Prediction of Concrete Swelling

The operation consisted of carrying out non-destructive investigations to determine the position of reinforcement steel, the current state of corrosion as well as the ongoing corrosion rate. The electrical resistivity of the concrete was also measured.

Reconnaissance surveys were used to corroborate these investigations and to directly visualise the state of concrete damage at depth.

Cores at different points of the dam were extracted, sampled and sent for laboratory testing:

The depth of carbonation of the concrete and its level of chloride pollution were measured.
The physical (density and porosity) and mechanical characteristics of the concrete were determined.
Cement content was verified and observations using a scanning electron microscope (SEM) made it possible to characterise the concrete pathology at the origin of the structural flaw, now visible at the surface of the dam.
Finally, accelerated aging tests were carried out for 52 weeks in order to assess the residual swelling potential of the concrete.

contact@sixense-group.com
sixense-group.com