



Dam during filling tests

**Country**  
France

**Client**  
Syndicat du Bassin  
de la Nivelle

**Date**  
2007-2008

**Cost of works**  
€10m exc. VAT

**Sogreah's services**  
• Design services and  
project supervision

Consortium: Sogreah (leading  
partner) - ISL - SARL Andusa



Fin de travaux

## Context

Construction of a flood-damping dam with no permanent reservoir.

## Description

### Structure

- "Dry" dam
- Maximum area: 73 ha.
- Capacity: 6 hm<sup>3</sup>.
- Height: 22 m.

- Crest length: 373 m.
- Crest width:
  - 5 m for the RCC section;
  - 6 m for the earth section
- Volume of body of dam:
  - 34,000 m<sup>3</sup> of RCC;
  - 156,000 m<sup>3</sup> of earthfill.

The dam is equipped with:

- a bottom outlet providing a passage for regular flows and fish;

- a narrow, intermediate flood-damping sill;
- a stepped surface safety spillway on either side of the flood-damping structure, limited by side walls;
- a dissipation apron downstream of the flood-damping structure.

### Reservoir

- Total reservoir capacity: 5.7 Mm<sup>3</sup> below elevation 59 m NGF.



### Hydraulic characteristics of flood-damping

Flood frequency	Maximum inflow	Maximum outflow	Maximum water level
1/10	101 m <sup>3</sup>	48 m <sup>3</sup> /s	48.5 m NGF
1/100	368 m <sup>3</sup>	219 m <sup>3</sup> /s	56.0 m NGF
1/10 000	923 m <sup>3</sup>	857 m <sup>3</sup> /s	59.0 m NGF
1983 flood	390 m <sup>3</sup>	214 m <sup>3</sup> /s	55.9 m NGF

#### Particular feature of project

- This mixed dam consisting of a right-bank earth section and a left-bank RCC section is not a barrier to fish (Atlantic salmon, sea trout, eels, brown trout, lampreys, shad, etc.) and at the same time protects urbanised areas situated downstream.

- A 1:40 scale model was built at Sogreah's hydraulics laboratory with a view to finalising the operation of the dam sluices and flood spillways.

#### Conclusion

The dam operated for a flood with a 10-year return frequency on 13 February 2009, just 3 months after it had been completed.

The Owner was extremely satisfied to see how effective it proved to be. None of the houses in the centre of Saint-Pée-sur-Nivelle was flooded, whereas without the dam several would have been under 0.5-0.6 m of water.



Photomontage

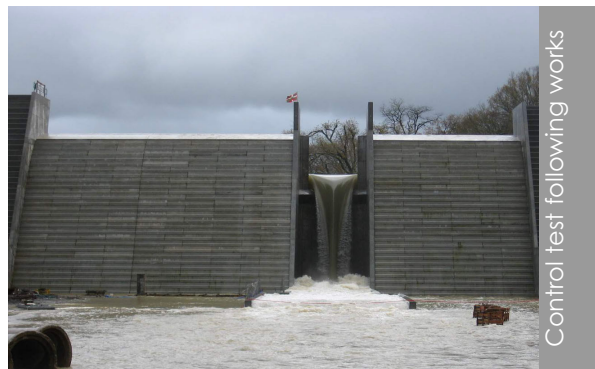


During the control test

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Scale model test



Control test following works