



# Diagnosis of the Rhone channel embankment

## Leak detection by Water Path Detection™ method

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Rochemaure (07), France  
Started in 2012, 1 months



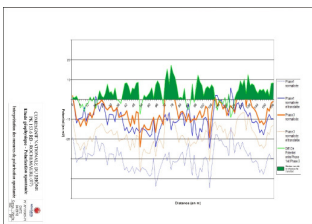
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This study was conducted along a portion of the permeable Rhone channel embankment. The body of the structure is highly permeable, allowing a significant transfer of water between the Rhone channel and the neighbouring canal. The fines had been washed out or washed away by the overflow.

When it was built in the 60s, the dam was submerged by a flood resulting in a superficial modification of its structure. The work was continued after this event without rectifying the damaged portion. This construction defect was evident as soon as water filled the structure as many leaks appeared.



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It was the recent increase in the flow of these leaks, fed by a set of funnels located upstream of the structure, that initiated the start of the study. Work has been undertaken in order to reduce the speed of transfer of water through the structure.

Within this framework, the downstream drainage was facilitated by removing the silt accumulated at the base of the embankment during successive floods of the river, after a lowering of the Rhone channel.

The aim of this study was to quantify the variation in speed of movement of water through the dam, between the initial and final states, and to demonstrate the effectiveness of the silt removal work that has been carried out. It was also to clarify the lines of flow from the funnels located upstream at the bottom of the reedbeds to the outlets at the foot of the embankment.

The results obtained showed unambiguously a significant reduction in transfer speeds across the dam after the work, and consequently their rationale and effectiveness.

### Legends

- 1. Infiltration funnels upstream of the dam
- 2. Prioritisation of outlets by colorimetry
- 3. Results of Spontaneous Potential (in green the increase after works)

### Key figures

- Comparative study of 3 phases:
  - Water Path Detection™ with geophysical plot and colour tracing
  - Tracing of conductivity and temperature of the water points
  - 105 measuring points for each of the three Spontaneous Potential phases