

# Floods Prevention in the BIEVRE VALLEY with Générale des Eaux

The company Générale des Eaux, in charge of the hydraulic regulation in the Bièvre Valley uses Alert and Visual Access for its remote control management system.

The numerous floods that occurred in the Somme, the Marne or the Seine river during the first quarter 2001 made the floods prevention the forefront of the news.

The hydraulic management system implemented by Générale des Eaux for the control of the swelling of the Bièvre, tributary of the Seine, South of Paris, enables to prevent flood risks and to protect the inhabitants of the valley from the swelling of the Bièvre.

In fact, this system perfectly managed the huge quantities of water drained by the Bièvre river and its tributaries.



The management of the outflows is carried out thanks to the maintaining of a maximum limit of water in canals, limit of overflowing, so as to optimize the hydraulic transfer capacity.

## Background

In 1982, the Bièvre Valley was submerged by 10 millions m<sup>3</sup> of water for a maximum evacuation and storage capacity of 2.5 millions m<sup>3</sup>! It was a terrific human and financial catastrophe. The Syndicat Intercommunal d'Assainissement (the intercommunes purifying office of the Bièvre Valley - SIAVB) which gathers 13 communes decided to increase its storage capacity by creating 2 impoundment reservoirs.

However, it was impossible and useless to create reservoirs that could store more and more water without putting in place a system that would analyse and adapt the storage and evacuation capacity of the Bièvre Valley. Since 1993, Générale des Eaux is in charge of the maintenance and management of the system.

## Technical principal

The technical principal is quite simple. Reservoirs (4 reservoirs with a total storage capacity of 274 000 m<sup>3</sup>) enable to store the water surpluses. The hydraulic management system measures the rate of flow and the water level at several critical points. As soon as a rate gets up to a critical level, the gates located upstream are automatically closed and vice-versa, as soon as the measures indicate that it is possible to evacuate, the gates of the reservoirs are progressively opened to reduce the water volumes stock. The system is supervised by a PANORAMA 7 supervisor. The data are transmitted in real time thanks to an APPLICOM 1000 card. ALERT and VISUAL ACCESS software products are used to warn the operators if an alarm appears and for the remote management of the system from a terminal.

## Role of ALERT software

ALERT intervenes at two levels.

First of all, ALERT informs the selected operators of the actions undertaken by the automatic hydraulic management system of the Bièvre Valley. The important information regarding the level measures, rate of flow, rate of flow variations are transmitted so that a specialist could judge if the actions undertaken by the automatons are appropriate and efficient.

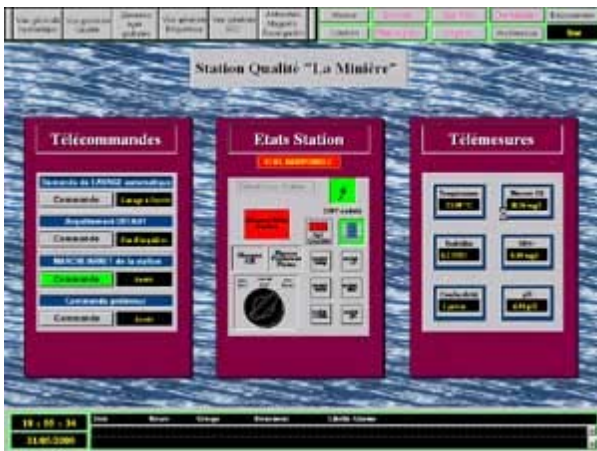


Each reservoir possesses its own technical warehouse which enables to measure the level, the flow, the flow variation and to automatically command the opening and closing of the floodgates. As they are conceived as chalets, they are in perfect harmony with the natural environment.

Then, ALERT transmitted the whole alarms to the operators selected in the on-call schedule of the software. Thus, every functioning defects (motorized gates, automatons, measures, power cuts, UPS, ...), intrusion in the technical building or defect (stuck cut branches, etc...) is immediately signalled by ALERT.

## VISUAL ACCESS role

In the same time, the operators can not only visualize the state of the system but also activate commands (gates, pumps, etc...). All the information are accessible thanks to VISUAL ACCESS.



ALERT and VISUAL ACCESS can be easily interfaced with PANORAMA 7 supervisor. Thus, ALERT can warn and inform the on-call operators. Thanks to VISUAL ACCESS, the system can be controlled from a terminal or Internet browser.

Thus, it is possible, at any time, to know the state of the reservoir, gates, outflow measures of the critical zones. The technical agent can also transmit instructions different from the automatons (more adapted to the situation he can observe on the side reservoir) thanks to VISUAL ACCESS. The system will soon be visualizable from an internet browser still thanks to VISUAL ACCESS.

## In the future

This system interests the professionals working in this field and the local authorities which really know the consequences of important floods.

We can thus think that, in the coming years, hydraulic management systems such as the one implemented in the Bièvre Valley will be developed.