

## DEVELOPMENT OF REAL TIME CONTROL

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The author has been engaged on planning activities related to Urban Drainage systems for over 11 years and has been involved in a number of research projects on RTC. He has been on the steering committee for a club contract undertaken by WRC funded by NWW, STW and Yorkshire looking at three case studies identifying the benefits of RTC in solving various problems within sewerage systems. This involved a study tour of towns in Germany and France. In addition to solely funded projects by NWW on this topic he is currently involved in a collaborative research project involving a research organisation and an industrial partner from each of three countries. This attempts to transfer technology from the process control sector of industry to the water and wastewater sector. Ultimately the transfer of this technology to southern Europe is intended.

In general terms UK sewerage systems have been developed extensively on a combined basis. They are predominantly gravity systems and frequent overflow discharges from combined systems to river have been allowed to prevent flooding as development has continued. In the past passive, low technology overflow control devices have been used, many of which are hydraulically inefficient and have little effect on minimising pollution.

Most Water Companies have commenced an extensive programme of sewerage system investigations in accordance with the philosophy contained within the Sewerage Rehabilitation Manual. This is increasingly resulting in the adoption of solutions that utilise storage within the system and/or involve the construction of storage devices. The control of this storage is essential to provide optimum performance of our systems. Essentially we are currently using high tech investigative techniques and trying to apply traditional low tech solutions to our problems. This may prove to be the best management practice for a particular system but in many instances maximisation of the capital investment will involve high technology solutions and dynamic control.

There are now increasing pressures to optimise performance of existing assets and maximise return on investment, together with increasing public awareness of environmental matters. External regulators such as the Director General of Water Services and the National Rivers Authority expect Water Companies to know more about their assets, their condition and performance. Communications technology is being harnessed to meet today's requirements for data collection and monitoring. It appears but a short step to move from monitoring system status to active control of sewerage systems.

This short paper will attempt to explore the current attitudes in the UK to Real Time Control and the role of hydraulic modelling and other tools in the development of RTC solutions. During the course of the paper a flavour of the European attitudes and experience will be given.