

Control Centre

The integrated water cycle



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1. Growth through innovation

Canal de Isabel II is an innovative company; it is an international benchmark in the water sector for its experience in the management of its integrated cycle. It heads a group of companies that supply water to more than 9 million people in Spain and Latin America.

The decision to supply water to Madrid in the mid-nineteenth century posed a real technical challenge: as there was no river with sufficient flow it was decided to find a way to transport the water from the headwaters of the River Lozoya, 77 km from Madrid. At this time Madrid had a population of 220,000 inhabitants.

With the arrival of this water the capital started to grow exponentially and this ushered in the era of modernisation that made Madrid one of the main European capitals.

Always at the forefront of the latest technologies, in the late nineteenth century Canal already had one of Spain's first long distance communication networks; a network covering almost 70 km to connect its installations.

The company's information and control system came into operation in 1983, on an experimental basis; it was the only one in Spain and one of the largest in the world. In 1989 the company installed the most advanced private digital communications network in the country. This network managed all its communications needs: telephone, fax and data, with the main facilities. The network included the first digital mobile telephone management system in Spain to serve the company's fleet of vehicles. The analogue trunking system was terminated in 1991, when the company moved to one of the first private communication networks in the country.



2. Control Centre

In 2008 a new control centre was build next to the company's waste water laboratory in the municipality of Majadahonda (Madrid). There was also a backup control centre located in the company's headquarters in Madrid, to allow operations to continue in case of an emergency.

Canal faces the daily challenge of supplying water to more than 6 million people in the Community of Madrid. This involves the operation of 13 reservoirs; 78 groundwater collection points; 13 drinking water treatment plants; 33 large forebays and 288 smaller ones; a 17,346 km adduction and distribution network; 160 drinking water pumping stations and 126 waste waters pumping stations; a 13,069 km sewerage network; 63 storm tanks; 785 km of collectors and outfalls; 156 waste water treatment plants; and a 421 km reclaimed water network.

Operating this complex hydraulic network requires the handling of large amounts of data to be able to manage the system at all times.

For this, the company has a set of information systems equipped with the latest generation technology that are integrated into the Control Centre located in Majadahonda.



[Watch a video about the Control Centre](#)



The Control Centre allows the company to continuously control the status of its facilities, regulate the most important parameters of the water provided, ensure the region's supply and improve the efficiency of operations, guaranteeing a prompt response to any incident that may arise.

Canal's control centre has integrated telecontrol and geographic information systems.

All the information received is managed and analysed using the telecontrol system's customised SCADA software, which is used by more than 900 employees and has more than 1,000 schemes, making it possible to analyse in detail any element of the infrastructure managed by the company.

The telecontrol network also has 57 remote control facilities that are able to remotely control the most isolated infrastructure.



3. Relevant technical data

- 19,796 implanted sensors.
- 67,000 control elements in the facilities.
- 1,694 remote stations connected together.
- 205,979 data points in real time.



Canal
de Isabel II

