



Technical Data

TANES RESERVOIR

- Reservoir capacity: 35.4 million m³.
- Basin surface area: 271 Km².
- Characteristics: Gravity dam, made of curved mass concrete with 175 metre-long crown and a height 95 metres above foundations.
- Surface sluice capable of draining a spate of 750 m³/s.

RIOSECO RESERVOIR

- Reservoir capacity: 4.3 million m³.
- Basin surface area: 337 Km².
- Characteristics: Gravity dam, made of curved mass concrete with 100 metre-long crown and a height of 28 metres above foundations.
- Surface sluice capable of draining a spate of 875 m³/s.

RIOSECO DRINKING WATER TREATMENT PLANT

- Capable of treating a maximum flow of 3.200 l/s.

TREATMENT PROCESS	SLUDGE LINE
Pre-oxidation	Gravity thickening.
Decantation	Drainage in dam filter.
Desinfection.	
Feathering.	
Rapid filtration.	

OPERATING CENTRE

- Lot surface area: 2.602 m².
- Number of storeys: 2.
- Built-up surface area / useful: Offices - personnel: 282 / 209 m².
- Bay - warehouse: 368 / 366 m².
- Space distribution: Office, dressing rooms, toilets/showers, kitchen/canteen and stores.
- Vehicle fleet: 3 vans, 3 4 x 4 's.

BAIÑA WASTEWATER PURIFICATION PLANT. Basin of the Caudal river .

TREATMENTS:	SLUDGE LINEA:
Biological flow treatment: 700 l/s.	Gravity thickening.
Primary flow treatment: 1.600 l/s.	Flotation thickening.
Equivalent inhabitants: 83.500.	Mixing and homogenising.
A 1m of river quality at the EDAR outlet: Salmonides.	Drainage in dam filter.

TREATMENTS:	SLUDGE LINEA:
Rough filtering, cleaning and degreasing.	Gravity thickening.
Primary decantation.	Flotation thickening.
Biological treatment: ventilation	Mixing and homogenising.
Nitrogen removal.	Drainage in dam filter.
Secondary decantation.	

FRIERES WASTEWATER PURIFICATION PLANT. Basin of the Nalón river .

TREATMENTS:	SLUDGE LINE
Biological flow treatment: 900 l/s.	Gravity thickening.
Primary flow treatment: 2.100 l/s.	Flotation thickening.
Equivalent inhabitants: 84.000.	Mixing and homogenising.
A 1m of river quality at the EDAR outlet: Salmonides.	Thermal drying.

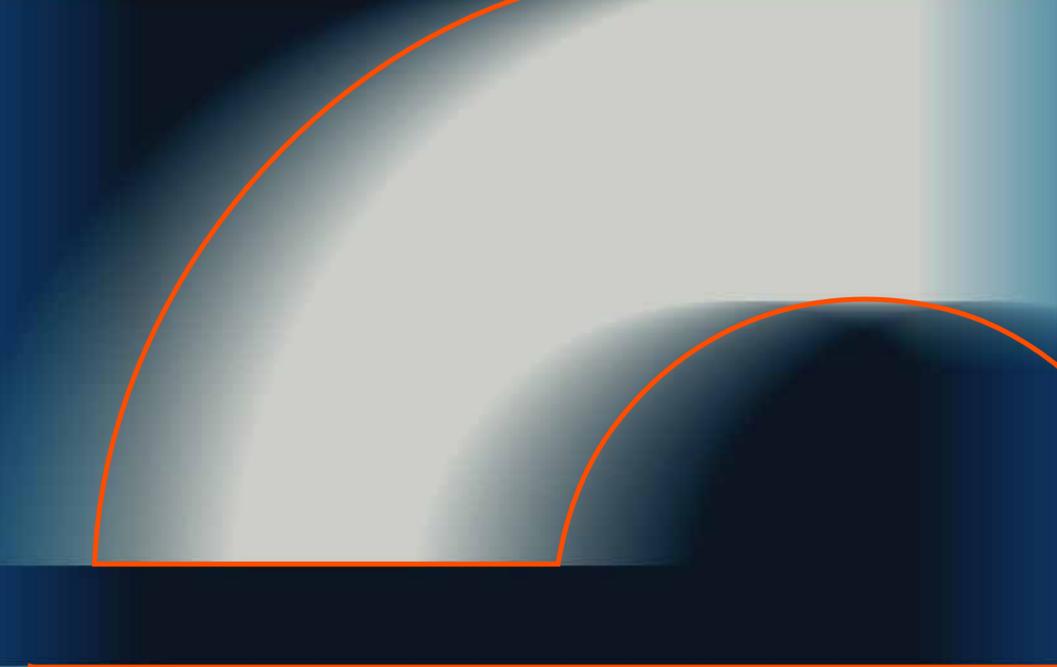
TREATMENTS:	SLUDGE LINE
Rough filtering, cleaning and degreasing.	Gravity thickening.
Primary decantation.	Flotation thickening.
Biological treatment: ventilation.	Mixing and homogenising.
Nitrogen removal.	Thermal drying.
Secondary decantation.	

ABLANEDA PUMPING STATION

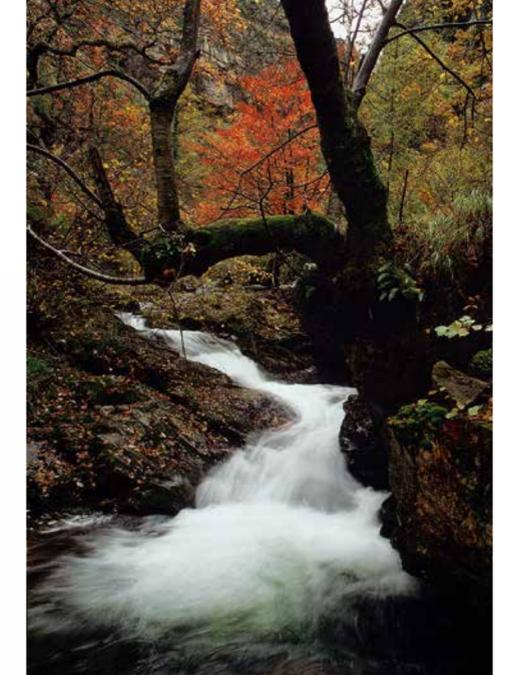
- Total drive capacity: 2.500 l/s.
- Two centrifugal pumps: 1.000 l/s.
- Grid voltage/ motors: 22 Kv/ 6,3 Kw.
- Installed power: 5.000 Kva.
- One motor: 900 Kw.
- 50 m diameter 13 m high tank, with a useful capacity of 25.000 m³.

PIPING NETWORK

- 13 Km of 2,6 de diameter tunnels.
- 120 Km of concrete, ductile cast iron, steel and fibrecement piping ranging from 1,8 to 0,3 m in diameter.
- 270 valves with diameters equal to or exceeding 400 mm, 200 vents and 165 overflows.



Whenever **water** is being treated



Water should be treated as it deserves

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Foundation and Aims



Water is an essential element to human activity. There are scant resources of this fundamental asset, yet in terms of population and development levels the demand for water is constantly increasing. For this very reason its use must be rationalised, returning it to nature in a state conducive to re-use.

Asturias, in spite of being a privileged region with respect to water resources, suffered from a distressing problem in the 1960's as regards the supply of water to the towns and industries of the region, not to mention the state of the rivers in the Central Zone.

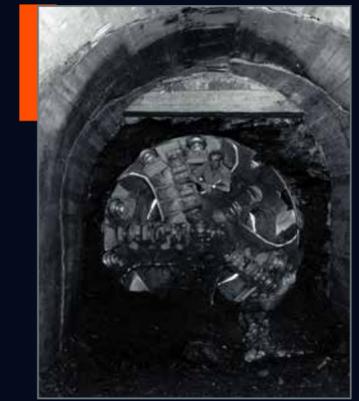


Towns and cities such as Gijón, an important centre of industrial activity and touristic growth, received only three hours' supply a day; in Oviedo the annual water restrictions to be observed would be set in the month of September. The situation was no different for the rest of the area.

On the other hand, direct dumping of used water from industrial and mining activities into the rivers, along with domestic wastewater, had turned the main rivers of the Central Zone into genuine sewers.

Firmly determined to resolve the aforementioned situation, as well as collectively facing up to the problems related to supply and drainage, the Consortium for the Supply and Drainage of the Central Asturian Zone, the **Consorcio de Aguas**, was founded in 1967.

The first efforts were directed towards creating an ambitious infrastructure capable of supplying 1 million inhabitants, the development of which was to be based on making the most of the surplus volume of the upper Basin of the Nalón River. This project was finally completed and entered into service in 1982.



Beforehand, in 1969 to be exact, the hydraulic apparatus was partially put into operation in order to resolve the supply problems being suffered by Gijón and UNINSA, a recently established iron and steel works. The water from the Narcea River was used, drawing from the channel used by Ensidesa in Ablaneda to supply its Avilés factory.

The **Consorcio de Aguas** is currently formed by:

- The **Autonomous Region** of the Principality of Asturias
- La Confederación Hidrográfica del Norte**, an autonomous State body, contingent upon the Ministry of the Environment.
- The **districts** of:

■ Avilés	■ Gozón	■ Noreña
■ Bimenes	■ Illas	■ Oviedo
■ Carreño	■ Laviana	■ San Martín del Rey Aurelio
■ Castrillón	■ Llanera	■ Siero
■ Corvera	■ Muros del Nalón	■ Soto del Barco
■ Gijón	■ Nava	■ Villaviciosa

The Governing and Administration Body of the Consortium are:

- The **Board of Directors**, made up of a representative from each one of the syndicated entities.
- The **President**, who in accordance with the statutes, is the board member representing the Principality of Asturias (the Chief Adviser of the Council in charge of supply and drainage. Currently, the Regional Board of the Environment).
- The **General Manager**.

The Consortium was established as a public entity of a regional authority type, was incorporated, and is governed in accordance with its articles of incorporation, supplemented by Local Legislation.

Asturias



General Plan of the System

The hydraulic apparatus of the **Consortio de Aguas**, originally designed to cover the needs of the Central Asturian Zone up to the year 2025, began operating in 1982. This apparatus, currently worth over 30,000 million pesetas, possess all the elements required to store, catch, treat and transport, by means of arteries and feeder-lines, the water from the Upper Nalón to the water tanks and deposits of the syndicated districts, and to supply large consumers such as Aceralia, Asturiana de Zinc, Corporación Alimentaria Peñasanta, Dupont, etc. directly.

The Consortium supplied 48.8 million m³ of water in 2000.

Moreover, the **Consortio de Aguas** has been entrusted with managing the EDAR (Wastewater treatment plant) at Frieres and Baiña, where the domestic and industrial wastewater from the Nalón and Caudal river basins is treated, serving a population of some 170,000 inhabitants.

The volume of treated water reached a sum of 22.2 million m³ in 2000.

Tanes Reservoir.



Pumping Station, Ablaneda.

The **Consortio de Aguas de Asturias** possesses a telematic system made up of a Supervisory and Remote Control Centre located at the central offices and several peripheral stations spread throughout the supply system.

The information that deals with the main parameters of the water quality (turbidity, free chlorine, temperature and pH), as well as other variables related to the running of the system (flow, pressure, volume, etc.) is collected at these peripheral stations and automatically transmitted (by radio and telephone) in real time to the supervision centre. The latter can also remotely control the opening and closing of the main valves of the supply apparatus.



Relay Station, Fario.



Rioseco Reservoir. Drinking water treatment plant, Rioseco.



Operating Centre (La Cobertoria).

Diversion and measurement works (Consolación and Avilés)



Wastewater treatment plant, Frieres.

Wastewater treatment plant, Baiña.



Ablaneda Tank.



Main piping, Rozadas. Split mains.



Diversion works, Nüñez.



Central Office, Oviedo.



The data collected from the supply system, and stored at the Centre, are processed and integrated into the Consortium's information network. These data can be later consulted by the personnel in charge of the various services and by technical office staff. Consultation, and even remote controlling, can be done from any authorised computer that forms part of the corporate information network, be it through the network itself, or by means of remote access through ISDN (Integrated Services Digital Network), RTB (Basic Telephone Network) or GSM (Global System for Mobile) links.

