

Orléans - Val plant Upgrading of the drinking water treatment process



Pays

France

Client

Lyonnaise des Eaux France

Date

2004-2006

Cost of works

€8.2m before tax

Sogreah's services

- ▶ Preliminary design study for upgrading and extending the plant to a capacity of 60 000 m³/d
- ▶ Detailed design study for the upgrading works (40 000 m³/d)
- ▶ Tender documents (4 works contracts: process, civil engineering, electricity/automation systems, pipes)
- ▶ Consultancy services (inspection of working designs; supervision of works; assistance with acceptance procedures; organisation, planning and coordination)



Context

The treatment process at the Val plant, which supplies the Orléans urban area with drinking water, is insufficient in regard to new regulations concerning pesticides, aluminium, manganese and arsenic.

Objective

An upgrading project has been drawn up, consisting in converting the existing sand filters to granular activated carbon filters and adding a refining stage involving the Cristal ultrafiltration process. In creating an absolute barrier to mineral, organic and biological particles, this new process will guarantee a perfect treated water quality.

Description of works

Works to upgrade the existing plant, and connection to the new treatment process.

- Transformation of the sand filter into a granular activated carbon filter: change of floor to increase nozzle density, removal of sand and, lastly, placing of the granular activated carbon.



- Fitting of an ozone eliminator downstream of the ozone contact chambers.
- Modification of the supply to the filter backflushing water tank.
- Creation of a chamber distributing effluents between the new plant and the existing plant, which will also act as a by-pass and over-flow; lime and bisulphite is injected into this tank.
- Distribution chamber with connection to the UF building via a ND1000 pipe, equipped with an electromagnetic flowmeter.
- ND 800 pipe to be created between the UF building and the existing tanks.
- Rehabilitation of the "Cyclofloc" into a tank to store dirty backflushing water from the UF blocks.

Structures for the membrane process

- The concrete structures and the building are sized for a production capacity of 60 000 m³/d.
- The equipment is sized for a production capacity of 40 000 m³/d.
- 450 m³ powdered activated carbon contact tank with bottom stirring.
- Two 900 m³/h booster pumps + 1 alternating pump capable of pumping 1800 m³/h.
- Three AMIAD prefilters with a capacity of 1800 m³/h and a 125 µm mesh.
- Five Ultrazur blocks each equipped with 24 modules with a cutoff threshold of 0.01 µm.
- Reagent rooms: two 975 m³/h backflushing pumps, one of which is used as a backup.

Electricity - automation systems

- 1000 kVA HVA/LV transformer, including cells and cabinets.
- 900 kVa generator.
- Earth loop.
- Heating (30 kW), ventilation and dehumidification.
- Automation and supervision systems of the new plant with connection to the existing supervision system.