

Valmayor drinking water treatment plant

IN SERVICE SINCE

- 1976

BACKFITTING

- 1988
 - Installation of the ozonisation plant and updating of the chlorine and ammonia facilities
- 1996/97
 - Modification of the sand filters and renewal of the automation system
- 2008/12
 - Extension of the DWTP and complementary refining treatment works

WATER SOURCE

- Guadarrama river
- Aulencia river
- Alberche river (Valmayor reservoir)

TREATMENT CAPACITY

- 12 m³/s: old line 6 m³/s
new line 6 m³/s

WATER TREATMENT

STAGES OF THE TREATMENT PROCESS

- Old line
 - Preoxidation-prechlorination
 - Coagulation-flocculation
 - Settling
 - Fast sand filtering
 - pH adjustment
 - Disinfection
- New line
 - Preoxidation-prechlorination
 - Coagulation-flocculation
 - Ballast settling
 - Sand bed filtration
 - Intermediate ozonisation
 - Filtering on granular carbon
 - pH adjustment
 - Disinfection

REAGENTS USED

- Chlorine and chlorine dioxide for preoxidation and prechlorination
- Ozone and potassium permanganate for preoxidation
- Aluminium salts in the coagulation stage
- Powdered activated carbon in the coagulation stage



- Flocculation aid in the flocculation stage
- Ozone in intermediate ozonisation
- Calcium hydroxide in the final pH adjustment stage
- Chloramines during the final disinfection stage

RELEVANT TECHNICAL DATA

- Old line
 - Four sludge recirculation settlers of Accelerator type with a unit diameter of 45 m and a unit volume of 8,200 m³
 - 24 sand filters with unit filtration surface area of 104 m²

- New line
 - Four ballast settling systems (Actiflo®) fitted with:
 - One coagulation chamber (6.23 x 4.80 x 7.00 m)
 - One injection chamber (6.23 x 4.80 x 7.00 m)
 - One ageing chamber (6.10 x 12.86 x 7.00 m)
 - 24 sand filters with unit filtration surface area of 104 m²
 - 12 open activated carbon granular filters with a unit surface area of 135 m²

TREATED WATER TRANSPORT CHANNEL

- Valmayor channel

SLUDGE TREATMENT

TREATMENT CAPACITY

- 22,965 m³/day
 - 20,000 m³/day from the filter washing
 - 2,965 m³/day from the settler blowdown

STAGES OF THE PROCESS

- 1,500 m³ filter water collection tank
- 1,000 m³ settler blowdown collection tank
- Thickening by subsidence and flotation

RELEVANT TECHNICAL DATA

- Three lamellar settlers of 19.38 x 6.10 x 5.10 m
- Two rectangular floats of 7.80 x 3.00 x 1.35 m with a unit capacity of 31 m³/h
- Two rectangular floats of 10.31 x 3.00 x 2.37 m with a unit capacity of 35 m³/h
- Four centrifuges capable of treating a maximum unit flow of 17 m³/h of sludge

FINAL SLUDGE DRYNESS

- 15-20%

