DRACE medioambiente

Sewage disposal and waste water treatment of the Cidacos River in Calahorra

1/2

The Drainage project for the whole valley of the River Cidacos includes treatment of waste water from the municipalities of Arnedo-Quel-Autol and Calahorra via a prefabricated concrete gravity sewer that covers 18 km up until the new Waste Water Treatment Plant.

Location	**Calahorra (La Rioja)**
Customer	**Consorcio de aguas y residuos de La Rioja Aguas de la Cuenca del Ebro S.A. (ACESA)**
Construction Period	**34 months**
Capacity	**23.000 m^3/day**
Population	**142.938 eq-in**

The new Waste Water Treatment Plant that treats an average daily flow rate of 23,000 m^3/day and serves an equivalent population of 142,983 equivalent inhabitants.

Water line

In the following table it is shown the initial raw water data for sizing the Waste Water treatment Plant and the effluent water parameters obtained:

	Input	Outlet
DBO_5	**373 mg/l**	**<20 mg/l**
SS	**300 mg/l**	**<25 mg/l**
NTK	**40 mg/l**	**<10 mg/l**

The treatment chosen for purification is a conventional activated sludge system with removal of ammonium and phosphorous by means of anaerobic, oxic and anoxic tanks in the biological phase, as well as two water lines using pre-treatment with a solids screen, fine solids screen, grit and grease removal, primary sedimentation, biological reactor and secondary sedimentation, as well as two storm tanks for flood control.

Treated water will be released directly into the river Cidacos, the possibility existing of irrigating the adjoining popular grove area attached to the treatment plant.

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2/2

Sludge line

The sludge line makes it possible to obtain 25% of dryness sludge and a reduction in volatile solids in the digestion process of > 45% by means of primary sludge gravity thickeners and dynamic biological sludge thickeners, with two anaerobic digesters which produce sludge fermentation, and by means of two 15m^3/h centrifuges which dehydrate it.

This plant can also treat sludge for compost via a sludge facility where the process of sludge fermentation and maturing takes place with structuring materials, thereby achieving a perfect level of sludge compost at the treatment plant for agricultural use.

Gas line

The gas line is made up of a gas-holder which, together with the installation of a cogeneration system and a 320 Kwe biogas motor, allows the plant to convert the methane gas produced in digestion in order to make use of heat energy and electrical power in plant operations.

The capacity to generate electricity at the plant is not enough for it to be self-sufficient, but does cover a great deal of its power requirements. Excess gas will be burned off in a special torch.

Auxiliary installations

The whole waste water treatment facility include chemical deodorization equipment which considerably improves the environmental impact on the area, the above being located in an area of irrigated farms close to an industrial estate, thereby minimizing the visual impact of the facility as much as possible.

The plant will also have all the control, measurement and automatism systems that a facility of these characteristics requires, a two floor control building being prepared for location and organization of all of these systems.