

CASE STUDY

SALI BASE CAMP GRN REGGANE GROUP

2019

Distributor **Envirostep SARL**

Project Installation of a watertight System O))
at a base camp in the Sahara Desert

Treatment Capacity **170,000 L/day**

Soil Analysis **Impermeable**

System Surface Area **2,066 m²**

Particularities of the Site Very large system with water recovery in a hot, arid environment

Treatment results available upon request.



Preparing the pipes

BACKGROUND

The Reggane North Development Project is a wastewater treatment system installed in the Sahara Desert in Algeria. The system was designed to treat and recover the wastewater from the main base camp for the GRN REGGANE Group at SALI. The treated water is recovered and held in a holding tank to be used to irrigate green spaces in the base camp. With no moving parts or filter media to replace, the watertight System O)) was the most cost-effective, long lasting, and efficient option.



PRIMARY TREATMENT

The System O)) is preceded by a primary treatment. Raw wastewater leaving the camp is collected in septic tank with an effective volume of 250,000 L. Inside the septic tank, the wastewater separates into layers as the fats float to the top and the solids sink to the bottom of the tank.

DISTRIBUTION

The effluent is pumped to the main septic tank, then is gravity-fed into 10 different cells. Each cell is fed by a distribution box that distributes the wastewater evenly into five other distribution boxes. These distribution boxes each feed six rows of Advanced Enviro))Septic pipes. The proper functioning of the System O)) depends on an even distribution of wastewater between the Advanced Enviro))Septic pipe rows. The treated effluent of the system is recovered and collected in a 150,000 L holding tank to be reused.



Holding the pipes in place while placing filter sand



Holding the AES pipes in place while placing filter sand



SECONDARY TREATMENT

This watertight System O)) uses 10 cells consisting of 30 rows of Advanced Enviro))Septic pipes. The wastewater flows along the length of the rows where it is treated by bacteria living in the pipes and in the filter sand during the infiltration process.

RECOVERY OF TREATED WATER

Underneath the System O)), there is a watertight membrane and a network of collection pipes. All of the water that is treated by the System O)) is recuperated by this network and directed towards a pumping station where it is then pumped into a recovered water holding tank.



ECONOMIC ADVANTAGES

By using a System O)), the client saves money in the long term. A System O)) costs roughly the same as a conventional system, but has a lifespan of over 30 years. Conventional installations can start to fail after 15 years even if they are treated well. The System O)) does not require maintenance and there isn't any filter media to replace or parts

that can break. This system allows the client to treat the massive quantity of wastewater that is produced everyday without having to worry that something will break. By using a watertight System O)), the client saves money on irrigation. Irrigating one hectare of green space with one inch of water costs roughly US\$17.



ENVIRONMENTAL ADVANTAGES

In the Sahara desert, potable water is a limited and very important commodity. By installing a watertight System O)) with a recovery zone, the company is helping protect this valuable resource by reusing the treated water for irrigation.

Only 13% of the wastewater that is collected in Algeria is treated. There is a scarcity of drinking water in Algeria and the water available is often contaminated with untreated wastewater.

Purification performance well below the country's standards:

- Less than 35mg/L of BOD₅ (5-day biochemical oxygen demand)
- Less than 35mg/L of suspended solids (SS)

The treatment process of a conventional installation occurs in the native soil, while System O)) treats the wastewater within the system, protecting the native soil and the local water supply.



Pipes mostly covered by filter sand



Covered Watertight System O))



Clarity of the System O)) effluent compared to the affluent



Control panel, piezometers and vents