

CASE STUDY

An Affordable Wastewater Treatment and Reuse Solution for Commercial Properties

ST. CONSTANTIN VILLAGE HOTEL, GREECE

Problem The St. Constantin Village Hotel & Suites, a luxury resort in Gouves, Crete, had a major problem. The resort's wastewater treatment system had failed, and a new system was needed – one that could provide a high level of treatment with no noticeable odor and could fit on the hotel's extremely compact site.

Solution In consultation with a wastewater engineer, the owner of the resort chose to install six AdvanTex® AX100 wastewater treatment units, manufactured by Orenco. The engineer designed a treatment solution that would fit under an existing staircase and produce an extremely high level of treatment while minimizing odor.

An “Invisible” Wastewater Treatment System Serves a Luxury Resort

Gouves, Crete, is a beautiful seaside village about 18 kilometers east of Heraklion. The area caters to tourists and features several beach resorts, many hotels, and a seaside promenade. Visitors come from all over the world to experience the delights of this historic Greek island.

The St. Constantin Village Hotel & Suites – a five-star resort – had a major problem. The 101-room facility's aerobic wastewater treatment system had failed, and an alternative was needed that could fit on the resort's very compact site. “This site not only had very limiting space constraints, but it also had stringent odor and treatment requirements,” says Bill Hensley, International Territory Manager at Orenco Systems.



This 5-star Greek resort selected an AdvanTex media filter, manufactured by Orenco, to replace its failing wastewater system.

Commercial — Reuse Market

Project Overview

GOUVES, CRETE, GREECE



Design Parameters

- 23,800 US gpd peak flow (90 m³)

Permit Limits

- 25/25 BOD₅/TSS

Effluent Quality*

- 9 mg/L BOD₅
- 11 mg/L TSS

Start-up Date

- July 2007

Total Project Costs

- \$156,000 USD (€115,000)

Collection System

- Onsite septic and grease tanks

Primary Treatment**

- 8,500 US gal. septic tank (32 m³)

Secondary Treatment**

- (6) AdvanTex AX100 units
- 31,700 US gal. (120 m³) recirc tank
- Chlorine disinfection

Dispersal

- Drip irrigation to landscaping

Project Engineer

- Georgios Dialynas, Dialynas S.A.

Operation and Maintenance

- Part-time operator, Dialynas S.A.

* Samples collected 21 June 2010 and analyzed by a third party.

** Because of space limitations, the designer shifted some organic reduction from the primary to the secondary treatment stage.

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In Greece, as in many parts of Europe, the amount of existing infrastructure creates unique challenges for wastewater engineers. They have to be very inventive in order to design treatment systems that can be safely installed without negatively affecting existing structures.

The owner of the resort approached Dialynas S.A., headquartered in Heraklion. The company's founder is recognized as a wastewater expert who finds effective solutions that meet all the parameters of a wastewater project.

Dialynas designed an innovative interior treatment system. First, a staircase was demolished to create space for the system. Then a recirculation tank was installed, and a room was built above the tank to hold six AdvanTex AX100 treatment units. Finally, Dialynas rebuilt the necessary walls and stairs.

The septic tanks used for primary treatment were positioned right under the poolside lounge area, and the AX100 units were right next to guest rooms, which is why minimizing odors was critical. As Hensley put it, "You'd never know there was a wastewater treatment system under there." Effluent from the system tested at 9 mg/L BOD and 11 mg/L TSS in June, 2010.

"I am truly very pleased with the AdvanTex system's performance," said the resort owner, "not only in operation but also in maintenance."

Another advantage of an AdvanTex system is that it can be repurposed, due to its mobility and long life expectancy. In 2022, municipal sewer lines were extended to the St. Constantin hotel site, and the local government required the owner to connect the property. Dialynas then removed the six AX100 units and relocated them for use at another project site that needed to expand its treatment capability.



Because the wastewater system was near the pool and guest rooms, minimizing odors was critically important to the resort's OWNERS. Photo courtesy of St. Constantin Village Hotel.

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St. Constantin's engineering firm – Dialynas S.A. – designed an innovative and compact interior wastewater system.



"I am truly very pleased with the AdvanTex system's performance, not only in operation but also in maintenance."

– Owner and General Manager,
St. Constantin Village Hotel

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