

# C A S E S T U D Y

## 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** The owner of the resort retained a wastewater engineer and chose to install six AdvanTex® AX100 wastewater treatment units, manufactured by Orenco.® The engineer designed a solution with minimal odor that fits under an existing staircase and produces an extremely high level of treatment.

### 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 has developed around beach resorts, which include 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.

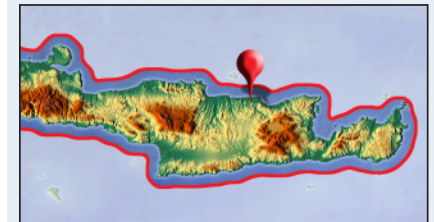


This 5-star Greek resort selected an AdvanTex® media filter, manufactured by Orenco®, to replace its failing wastewater system.

### Commercial — Reuse Market

#### Project Overview

#### GOUVES, CRETE, GREECE



#### Design Parameters

- 23,800 US gpd peak flow (90 m<sup>3</sup>)

#### Project Engineer

- Georgios Dialynas, Dialynas S.A.

#### Permit Limits

- 25/25 BOD<sub>5</sub>/TSS

#### Effluent Quality\*

- 9 mg/L BOD<sub>5</sub>, 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 m<sup>3</sup>)

#### Secondary Treatment\*\*

- (6) AX100 units
- 31,700 US gal. recirc tank (120 m<sup>3</sup>)
- Chlorine disinfection

#### Dispersal

- Drip irrigation to landscaping

#### Operation and Maintenance

- Part-time operator, Dialynas S.A.

\* Samples collected 6-21-10 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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**ST. CONSTANTIN VILLAGE HOTEL, GREECE**

**Commercial — Reuse Market**

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

The owner of the resort approached Dialynas S.A., headquartered in Heraklion. Georgios Dialynas, company 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 had to be demolished to create space for the system. Then a recirc tank was installed, and a room was built above the tank to hold six AX100 treatment units. Finally, Dialynas rebuilt the necessary walls and stairs.

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

Dialynas offers “turn-key” wastewater solutions, in which design, installation, and operation for three years is included in the project price. This critical benefit gives property owners peace of mind, knowing that their wastewater system will have quality components that are installed, operated, and maintained by knowledgeable wastewater professionals.



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



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

“I am truly very pleased with the AdvanTex system’s performance,” says the owner of the St. Constantin Village Hotel & Suites, “not only in operation but also in maintenance of the system.”

*“I am truly very pleased with the AdvanTex® system’s performance, not only in operation but also in maintenance of the system.”*

~ Owner and General Manager,  
St. Constantin Village Hotel

For more information about effluent sewers, Orenco Sewers™ and AdvanTex® Treatment Systems, contact Orenco Systems®, Inc.



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*Data used by Orenco to derive the representations and conclusions contained within this Case Study were current as of March, 2013.*