

GREECE

ENVIRONMENT AND PROCESS

THERMAL PROCESS TECHNOLOGIES

Thermal sludge drying plant for Psytalia/Athens
wastewater treatment plant

Parthenon, Athens, Greece



**‘ANDRITZ IS A RELIABLE
AND SUPPORTIVE SUPPLIER.’**

IOANNIS MARGIOLOS

Environmental Business Unit Director, AKTOR S.A.

AKTOR is the largest construction company in Greece. For more than 50 years, the company has played a dynamic role in the country's technologically advanced projects: dams, bridges, marine works, tunnels, buildings, and industrial and municipal projects. The company has developed considerable expertise in the field of urban waste and sludge treatment, having constructed biological treatment facilities in Greece and the Middle East. We spoke with Ioannis Margiolos, Environmental Business Unit Director and the Project Manager for one of Europe's largest wastewater treatment plants.



ENERGY EFFICIENT, ENVIRONMENTALLY SOUND

Interview with **Ioannis Margiolos**,
Environmental Business Unit Director, AKTOR S.A.

Experience

I have worked for AKTOR as Director of the Psyttalia Wastewater Treatment Plant for the past eight years, but I have over 20 years of experience in project management. I hold a degree in electromechanical engineering from the National Technical University of Athens.

As an Environmental Business Unit Director for AKTOR, I am now responsible for the construction of a sewage treatment plant in the United Arab Emirates and a wastewater treatment plant in Bucharest. It is a challenge for me to work on these two projects so far away from each other, but it makes my life interesting.

The KELPS facility

KELPS (The Wastewater Treatment Plant of Psyttalia) is located on the island of Psyttalia. It is the second largest wastewater treatment plant in Europe and one of the world's largest.

KELPS receives urban sewage and pre-treated industrial wastewater from the greater Athens area – population equivalent 5.6 million people. The plant has a capacity of 1,000,000 m³ per day. In 2006, the daily average wastewater flow treated amounted to 705,000 m³. The plant is designed in accordance with the EU's Wastewater Directive for the year 2020.

With the completion of Phase A (primary sewage treatment) in 1994, the pollution load was reduced by 35%. When Phase B (secondary biological wastewater treatment) was completed in the summer of 2004, the pollution load was reduced by 93% and the nitrogen load was reduced by 80% (through tertiary treatment). So the plant's operation has significantly improved the water quality and environmental cleanliness of the Saronic Gulf.

The sludge drying project

In March 2006, the joint venture between AKTOR S.A. and Athena S.A. was awarded the contract for designing and building a thermal sludge drying plant for KELPS. The total investment cost was EUR 30 million. The drying plant started operation in June 2007.

The plant consists of four drying lines with a total capacity of 34.5 tons of evaporated water per hour (300 tons of dried sludge per day). The plant is very energy efficient. The average consumption of thermal energy is 917 kWh/t of evaporated water. The energy comes either from direct heating or from biogas created by the digesting process. Up to 80% of the total energy required is recovered from the cogeneration plant. The treated odorous gases are passed through three regenerative thermal oxidizers before being released to the atmosphere.

Andritz's contribution

Andritz engineered and manufactured the main equipment for the sludge drying plant: drying drums, pre-separators, polycyclones, condensers, screening system (to turn very small particles of dried sludge into the proper granulate size), cooling system for the final product, and even the pneumatic transportation of the final product to the storage silos.

Andritz's technology dries the sludge from 25% to a minimum of 90% dry solids content. The granulate diameter is 1-5 mm for at least 93.5% of the final product.

Experience with Andritz

Before this project, I did not have any experience with Andritz. Because of this, I had questions about the company and its capabilities for a project of this size. But after visiting some of their reference installations in Europe, I was favorably impressed.

Performance

Andritz's performance during this entire project was a pleasant surprise. They delivered the drying drums very fast so that the building could be constructed around them. They worked with us step-by-step toward completion of the project. The level of cooperation was excellent. Andritz met all of its schedule commitments. The cost in relationship to the quality of the installation was sufficiently low, and the safety measures they took during the project protected workers against accidents.

After-sales support

After six months of operation, we are really happy to say that we have achieved all our contractual commitments and we are grateful to Andritz for that. Andritz was a reliable and supportive supplier. Even after the start-up, they continued to help us achieve our good results. I honestly feel that I can rely on them just like with good friends.

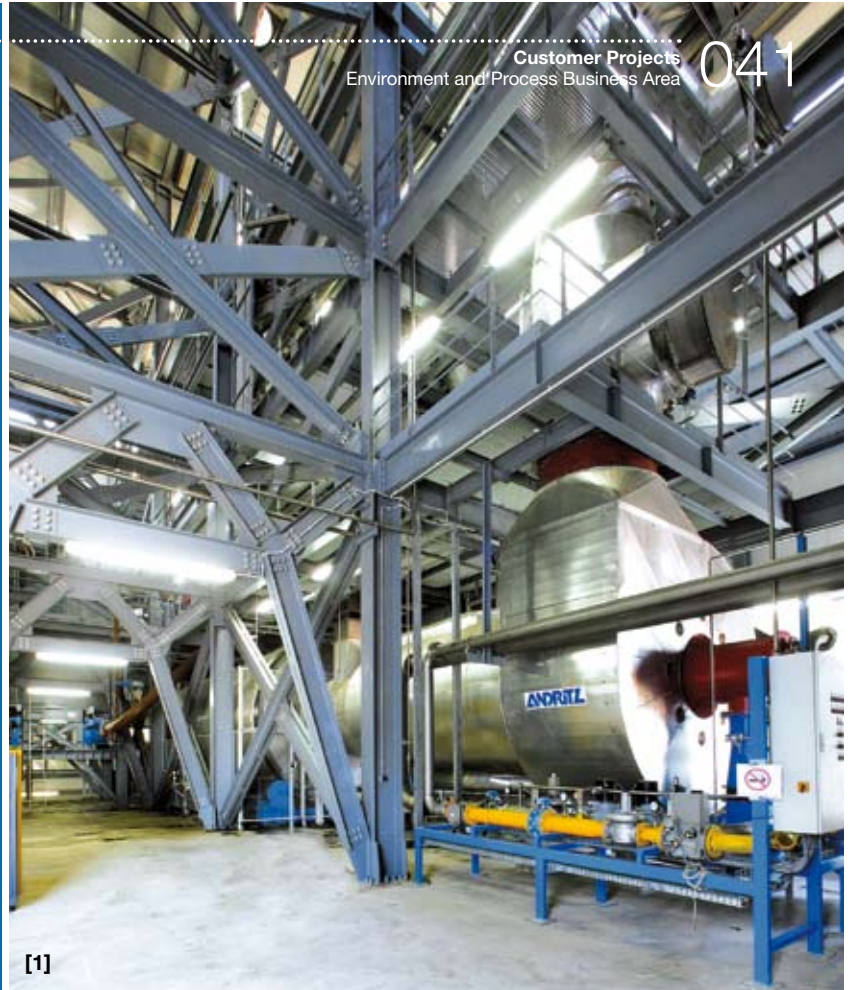
The most important factors to me when selecting a supplier are the technology used, the quality of the equipment, highly qualified manpower, and the service provided. Andritz satisfies all of these factors. If only all my suppliers were just as knowledgeable and responsible as Andritz is. ○

ANDRITZ HAS DELIVERED EUROPE'S LARGEST SLUDGE DRYING PLANT TO THE WASTEWATER TREATMENT PLANT OF PSYTTALIA/ATHENS, GREECE.

[1] The sludge drying plant consists of four identical drying lines with a total nominal capacity of 34.5 tons of water evaporation per hour. The drying process can be fueled by natural gas as well as biogas.
Photo: Drying drum, furnace, and burner of one line

[2] Dried sludge (granulate) loading station. The granulate can be used as a substitute for fossil fuels in heat and power generation systems or for soil improvement.

[3] Andritz provided a complete supply and services package consisting of engineering, purchasing, manufacturing, supervision of erection, and start-up of the drying plant. Photo: View of the individual levels



[1]



[2]



[3]