

## Metamorfofi Wastewater Treatment Plant



Metamorfofi Wastewater and Septic Sewage Treatment Plant (Metamorfofi WWTP) was constructed in the early 80s within the framework of the Ministry of Public Works project "Design and construction of a plant for the discharging and treatment of septic sewage and municipal wastewater in Metamorfofi in Attica region". It is the only plant in Attica Prefecture that can receive and treat septic sewage generated from areas without sewerage system. As a result, uncontrolled sewage discharges mainly into streams stopped and consequently, environmental protection of surface and ground waters was achieved.

The operation of the first phase comprising the treatment of septic sewage began in July 1984. In March 1986 the plant was set in full operation receiving also municipal wastewater from certain northern suburbs of Attica region. The treated effluent is discharged in Pynas stream.

The design capacity of the plant is 24,000 m<sup>3</sup>/d of septic sewage and 20,000 m<sup>3</sup>/d of municipal wastewater corresponding to a total organic load of 30,470 kg/d BOD, equivalent to 500,000 inhabitants.

According to recent operational data, around 700 trucks are discharging septic sewage into Metamorfofi WWTP on a daily basis (annual average 550 trucks) which in terms of flow corresponds to 11,000 m<sup>3</sup>/d of septic sewage and around 10,000 m<sup>3</sup>/d of municipal wastewater are also treated. The efficiency of the plant is above 97%.

The Metamorfosis WWTP facilities comprise:

Trucks discharging area.

Pre-treatment of septic sewage - municipal wastewater (screening, grit removal, oil & grease removal). Two (2) manually operated bar screens and three (3) mechanically operated bar screens, two (2) aerated grit removal tanks, volume 300m<sup>3</sup> each.

Pre-treatment building odour removal unit.

Primary sedimentation of septic sewage with the addition of coagulant. Two (2) sedimentation tanks, 1,350m<sup>3</sup> volume each. Sludge pumping station with four pumps, monhopump type, 30m<sup>3</sup>/h capacity each.

Primary sedimentation of municipal wastewater. Two (2) sedimentation tanks, 1,512m<sup>3</sup> volume each. Sludge pumping station with two submersible pumps, 60m<sup>3</sup>/h capacity each.

Biological treatment (activated sludge method). One (1) aeration tank 21,000m<sup>3</sup> volume, fifteen (15) slow vertical surface aerators, 55KW power each. Pumping station with three (3) sludge recirculation pumps, 900m<sup>3</sup>/h capacity each. Pumping station with two waste sludge pumps 120m<sup>3</sup>/h each. Secondary (final) sedimentation. Two (2) sedimentation tanks, 4,570m<sup>3</sup> volume each.

Disinfection. One (1) contact tank 1,600m<sup>3</sup> volume. Sodium hypochlorite dosing system.

Industrial water installation (sand filters).

Anaerobic sludge digestion. Two (2) primary digestors, 7,900m<sup>3</sup> volume, one (1) secondary digester 3,000m<sup>3</sup> volume, biogas mixing system.

One (1) liquid type biogas reservoir tank, 1,000m<sup>3</sup> volume.

Sludge dewatering (belt filter presses). Four (4) belt filter-presses, 800-1,000kg DS/m.h

Sludge dewatering building odour removal unit.

Supervising Control and Data Acquisition System (SCADA).

Chemical - microbiological laboratory.