

INNOVATIVE TECHNICAL AND ENVIRONMENTAL ASPECTS IN PLANNING, CONSTRUCTING AND OPERATING THE SANITARY LANDFILL OF LARISSA

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EXTENDED ABSTRACT

The aim of this paper is to present the technical and environmental aspects as well as the acquired experience in designing, construction and long-term operation of the Sanitary Landfill (SL) of Larissa, which started its operation in February of 1998.

The SL of Larissa is located about 25 km to the NW of the city of Larissa. The total area of the plant is 56 hectares, 20 of which will be developed as landfilling area. For the time being the SL of Larissa serves mainly the Municipality of Larissa, of 160.000 inhabitants and 60.000 tons of municipal solid waste (MSW) per year, however it has been planned to accept the MSW of the whole Prefecture of Larissa with an equivalent population of 300.000 inhabitants, as well as to accept 100.000 tons of MSW per year for ~ 30 years.

The design and the operation of the SL of Larissa complies with the most advanced technical specifications, as well as empirical data and current practice and is in conformity even to the latest Directive of the European Union.

In order to achieve an optimum control of the leachate and landfill gas, the landfill has been gradually developed in independent Phases.

For the prevention of ground and groundwater pollution, a sophisticated lining as well as drainage system was applied to the floor and sides of the existing Phases, having the potential to be easily extended in steps, for the construction of future Phases. The principle of leachate management includes the minimization of leachate production, the prevention of any uncontrolled migration as well as the handling of emergency situations in cases of heavy rainfall and finally, the efficient leachate collection and treatment.

The method used for leachate treatment is biological treatment in aerated lagoons in the Leachate Treatment Plant situated in the landfill area.

Regarding biogas management, there are horizontal gas collection pipes, which have been buried in the waste mass. The necessary collection pipework and pumpstation have also been installed.

The method of gradual restoration, which is employed in the SL of Larissa has been designed according to the EU Directives, so that the site can be restored in phases in an environmental friendly manner.

Environmental monitoring is conducted in a stable and very frequent basis in order to ensure that no contaminants that may affect public health and the surrounding environment are released from the landfill.

Key words: Sanitary landfill, groundwater protection, leachate minimization, leachate treatment, biogas management, landfill economics.