

PROJECT	Hellenic Petroleum Comp. Refinery Unit
DATE	October 2009
CUSTOMER	AKTOR S.A.
INDUSTRY	Industrial – Energy
LOCATION	Elefsina, Attiki, Greece
PRODUCTS	PENETRON ADMIX®, PENETRON®, PENECRETE MORTAR®, PENEPLUG®, PENEBAR® SW, PENETRON® GROUT



CASE SUMMARY

In autumn 2009, in Elefsina area, began the construction – expansion of the new Refinery Unit of Hellenic Petroleum Comp.

Part of the new Unit was the construction of the underground network of collection and recirculation of the residual products of the refinery, as well.

The underground network envisaged the construction, sealing and repairing of 1,000 precasted wells from reinforced concrete, total volume (5,200 yd²) 4,000 m³. The precasted wells should be fully sealed and protected from corrosion phenomena, such as concrete carbonation and chloride penetration due to corrosive underground. There was also the requirement, the reinforced concrete to be protected from chemical attack due to the high chemical load of the refined byproducts. For all these reasons, the project engineers, decided to use PENETRON ADMIX® for the total waterproofing and protection of the concrete constructions.



The advanced and innovative system includes the permanent and absolute concrete waterproofing with the addition of PENETRON ADMIX®, a special crystal growth concrete additive following the completion of any repairs with PENETRON®, PENECRETE MORTAR® and PENEPLUG®. This system ensures the permanent waterproofing of the construction, but the key difference from most known waterproofing systems is that instead of applying a waterproofed topping on the concrete surface, we make the reinforced concrete construction, not only permanently waterproofed, but with high chemical resistance providing protection from corrosion and carbonation phenomena.

Also, the system, due to the crystal growth, creates a continuous self-healing effect in case of moisture ingress. The system, in total is user and environment friendly while keeping low manufacturing cost, remaining a highly reliable waterproofing and protection system for concrete structures, without the need for continuous maintenance. The wells were casted in two different precast manufacturers (BETOFILL S.A. and VERYKOKOS S.A.) and the sealing between the well and the metallic pipes, was done on site.



In the project, PENETRON® GROUT and the water expanding system, PENEBAR® SW, were also used in the project, in order to waterproof, seal and anchor the connection between the concrete wells and metal pipes with diameters ranging from Ø 3.9" to 31.5" (Ø 100 to 800 mm).



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