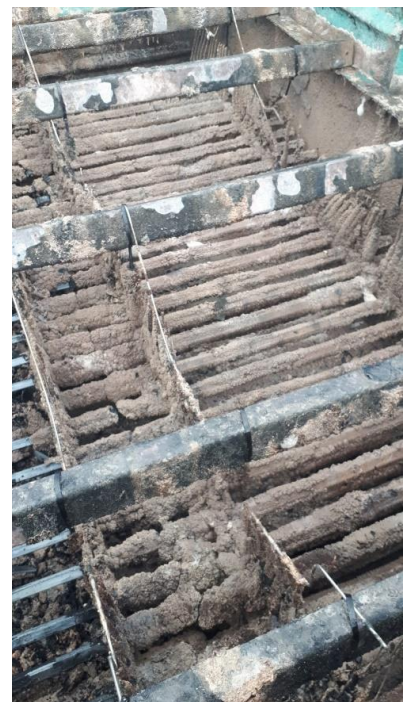


## THE CHALLENGE: Cooling tower revamping in an oil refinery

This challenge takes us to one of the largest oil refineries in the province of Granada, Spain. Cooling towers are often the big forgotten in industrial plants. They are equipment that usually require little maintenance that is limited to an occasionally mechanical equipment checking and to ensure the water treatment maintains the required parameters.

It is an 18-year-old Torraval forced draft cooling tower that had not undergone any repair, interior cleaning or fill pack change along the time. The water carried fatty acids from the refining process and although the tower was provided with a special drip fill pack for water with high solids content, the low maintenance caused the break of the mesh that hold the fill due to the accumulated weight, falling to the cooling tower raft part of it.

The cooling tower was seriously damaged in its structure by the fall of the fill and the weight supported for years. The client require us fix or replace the cooling equipment in the shortest time possible.



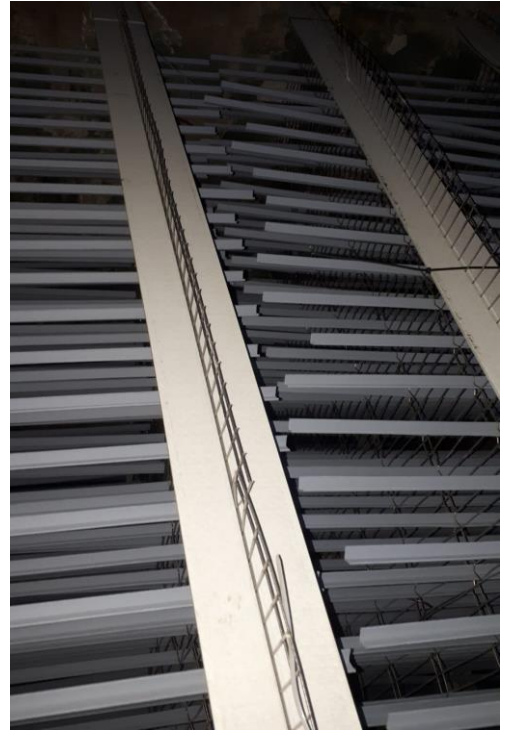
## THE SOLUTION

The complete renovation of the internals, special drip filling, splash plates and supports for both filling and fan was carried out, maintaining the water distribution channels.

This required the demolition of the existing supports and removal of the meshes and slats fall into the pool tower. Due to the accumulation of grease, it took several days to remove the debris and clean the cooling tower.

The new supports were mounted on beams made of polyester reinforced with fiberglass, GRP, which will prevent corrosion during the rest of the installation's useful life.

Also, a tie rod was designed and installed in the lower body to prevent the structure deformation suffered due to the weight supported along the time.



## RESULTS

- Very satisfied customer, since a purchase of a new cooling tower has been avoided.
- The resulting cooling tower is equipped with anti-corrosion plastic materials.
- The useful life of the installation is extended with a minimum investment.
- Improvement in the performance of the process, by having colder water due to its better distribution.

## CUSTOMER BENEFITS

- Learning about how to maintain the installation. Basic preventive ranges were proposed.
- Economic savings by avoiding replacing the cooling tower.
- Reduction of downtime, the works were carried out in less than a week.
- Modern and renovated facility

