

# Rod ElFarag Water Filtration Plant (Expansion Program)

## Client

The General Organization for Greater Cairo Water Supply (GOGCWS)

## Scope of Work

- Soil Investigations and laboratory analysis.
- Engineering preliminary and detailed designs.
- Preparation of equipment procurement specifications and bid requests, as well as assisting in the evaluation of bids.
- Preparation of construction documents and bid requests, as well as assisting in the evaluation of bids.
- Providing construction management and resident inspection services during construction.
- Start-up and operation of the completed southern complex until completion of performance guarantee tests.
- Training GOGCWS personnel on the O&M of the complete facility.

## Location

Cairo, Egypt

## Types of Activities

Architecture  
Civil works  
Infrastructure

With a total construction value of US\$ 500 million, Rod ElFarag water filtration plant expansion program was awarded to ECG. It involved increasing the capacity of Rod ElFarag treatment plant from 200,000 m<sup>3</sup> /day to 600,000 m<sup>3</sup> /day. The USAID-funded initiative, undertaken in cooperation with ES Parsons, is a landmark in the firm's experience in developing mega-scale water treatment plants.

The project included a new Nile water intake, a new raw water pumping station, water clarification and filtration facilities, a new filtered water pumping station (about

800,000 m<sup>3</sup> / day), approximately 5 km of new trunk transmission lines and associated appurtenances to handle the increase in water production.

The project included a process study to determine the most suitable, efficient and cost effective process for treating the River Nile water in Egypt and; to determine the most suitable coagulant and coagulant aid dosage; the optimum surface loading, detention time, rise rate, velocity gradients and other design parameters associated with the treatment process were considered. Each studied process was supported with sufficient data





and laboratory tests. Pilot plant investigations were carried out to ensure that the recommended process is the most economical and effective process for the upgrade of Rod ElFarag south section treatment complex.

Based on the selected treatment process, improvements; expansions; and modifications were determined taking into account the utilization of the existing treatment units, when economically feasible and without interrupting the existing water production level of the plant.

The expansion scheme of the southern part of Rod ElFarag Treatment Plant included:

- The water treatment plant.
- A new raw water intake (consisting of two 2,400 mm pipelines, extending 175 m in the River Nile, a raw water pump station including six vertical turbine pumps with total capacity of 780,000 m<sup>3</sup> / day at 11 m head and three traveling screens).
- Two underground storage reservoirs.
- A finished water pump station including eight vertical turbine pumps of a total capacity of 1,200,000 m<sup>3</sup> / day at 60 m head.
- All other facilities of the treatment plant.