



Water

Wastewater

Client

Alexandria General Organization for Sanitary Drainage

Location

Alexandria, Egypt

Wastewater Program Management and Institutional Support

Project Description

The City of Alexandria, Egypt, had inadequate wastewater systems to support its large urban population, which was causing health impacts and environmental degradation. CH2M HILL has been supporting the AGOSD through a series of contracts for engineering, construction management, operations and maintenance (O&M), and training and institutional strengthening to provide the infrastructure and institutional capacity necessary to provide safe, sanitary waste disposal for this growing urban populace.

CH2M HILL, in a joint venture with another U.S. firm, and two Egyptian subconsultants, provided program management and engineering services for the upgrade and expansion of Alexandria's sewage collection, treatment, and disposal facilities. During the initial phases of the wastewater program, the team developed a comprehensive plan for irrigation and reuse of Alexandria's entire wastewater flow. The plan, completed to the stage of preliminary design, included a 50-km transmission system, treatment, and irrigation of over 40,000 ha of newly reclaimed land. This infrastructure component included two 500,000 cmd advanced wastewater treatment plants, 250 km of gravity and pressure pipelines, and 22 pump stations.

The institutional development component, which again was undertaken with Metcalf and Eddy and later Chemonics, provided AGOSD with improved corporate management and O&M planning, financial control systems, a fully operating MIS, and increased staff capability. CH2M HILL worked successfully with AGOSD to develop and implement a strategic plan and a comprehensive action plan. The focus was to upgrade staff and structure capabilities, processes, systems and tools, the culture, and the strategic direction needed to improve wastewater collection and treatment system for Alexandria. The partnership approach between the CH2M HILL team and AGOSD has resulted in significance performance improvements, an achievement recognized by USAID with the award of a 100% performance award fee for the contract period ending June 2003.

CH2M HILL, as program manager for the wastewater program, provided full program management services including master planning, scheduling, field geotechnical explorations, environmental impact assessments, full design of conveyance pipelines and tunnels, pump stations, and wastewater treatment plants, bid package development, cost estimating, procurement of construction contractors, construction oversight for four contracts, and training to AGOSD managers for O&M of the constructed facilities. This included construction claims mitigation and risk management.

CH2M HILL also provided construction program management for the upgrade and expansion of Alexandria's sewage collection, treatment, and disposal facilities to serve an estimated population of 3.5 million. Project facilities included:

- Two 500,000 cmd advanced wastewater treatment plants (Alexandria East and Alexandria West Wastewater Treatment Plants)
- About 250 km of gravity and pressure pipelines ranging in size from 200 mm to 2,750 mm in diameter
- About 20 km of tunnels ranging from 600 to 1,400 mm diameter
- 22 pump stations

Construction oversight was provided for four U.S. construction contractors and five local contractors to deliver this infrastructure component of the program. CH2M HILL was the "Engineer" as defined in the International Federation of Consulting Engineers (FIDIC), conditions of construction contract for the above projects. Typical CM functions included:

- Administration of the construction contract between the contractors and the Employer
- Liaison with various governmental agencies
- Supervision of construction quality assurance
- Monthly payments to the contractors
- Contract modification during construction
- Claims mitigation
- Daily observation of the works and reporting
- Resolving day-to-day construction conflicts and other difficulties during construction
- Monitoring project schedule and cost, and providing training to the Employer's staff for operation & maintenance.