

# Alexandria wastewater treatment plant



In October 2008, the Construction Authority for Potable Water & Wastewater "CAPW" awarded the Consortium SUEZ and The Arab Contractors a contract for the Rehabilitation, Extension of Primary Treatment and Addition of Secondary treatment of the Alexandria East Wastewater Treatment Plant.

The contract is composed of two phases :

Phase 1 includes a rehabilitation and extension of the existing treatment units in order to increase the existing treatment capacity of the plant by 190,000 m<sup>3</sup>/day to reach a total capacity of 800,000 m<sup>3</sup>/day. Phase 1 also includes the addition of a sludge treatment.

Phase 2 consists of the addition of a 800 000 m<sup>3</sup>/day biological treatment with related improvement in term of effluent quality.

The contract also includes a period of 2 years of Operation and Maintenance of the plant after completion of the construction.

Within the Consortium SUEZ is responsible of the process design, the supply, installation and commissioning of the process equipment. The Arab Contractors is in charge of the civil work.



## water treatment

### pretreatment and primary treatment

- Upgrade and rehabilitation of existing facilities including installation of grit and grease removal bridges on existing tanks.
- Addition of 2 new grit-grease removal tanks and 2 new primary clarifiers (35 m diameter).
- Pretreatment hydraulics secured through in-deph computerized fluid modelling surveys (Fluent® Computational Fluid Dynamics).

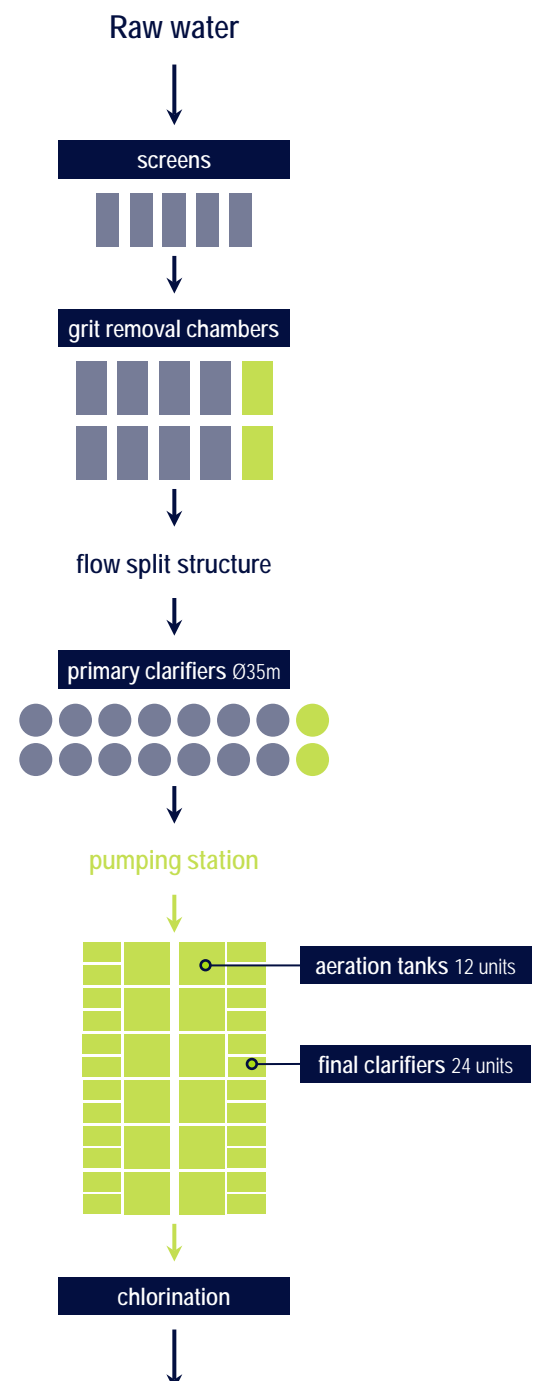
### biological treatment

#### Optimized biological treatment :

- Rectangular type clarifiers to minimize footprint
- Flexible design with 12 modules (1 aeration tank + 2 clarifiers)
- Air blower building
- 24 final sedimentation tanks
- 6 sludge recirculation pumping stations
- 8 stand-by generators (full electrical supply back up for biological treatment and sludge treatment)
- Vibrair® : robust and reliable air diffusion system
- Works foundation : construction on piles, best appropriate to site ground conditions

existing works

additional works





## sludge treatment

The sludge treatment is designed to reduce drastically the volume of sludge transferred to the sludge disposal site

### thickening

2 lines of sludge thickening are first implemented in order to optimize the number of centrifuges used for final dewatering :

- Primary screened sludge at a concentration of 1% is thickened on 2 static thickeners to reach a concentration of 5%.
- Biological sludge at a concentration of 0.46 % is thickened on 8 gravity belt thickeners (+ 4 units) to reach a concentration of 3.5%

### dewatering

After homogenization of the two lines, sludge is dewatered on 5 centrifuges (+ 3 stand-by units). Sludge dryness reaches 20%.

### storage

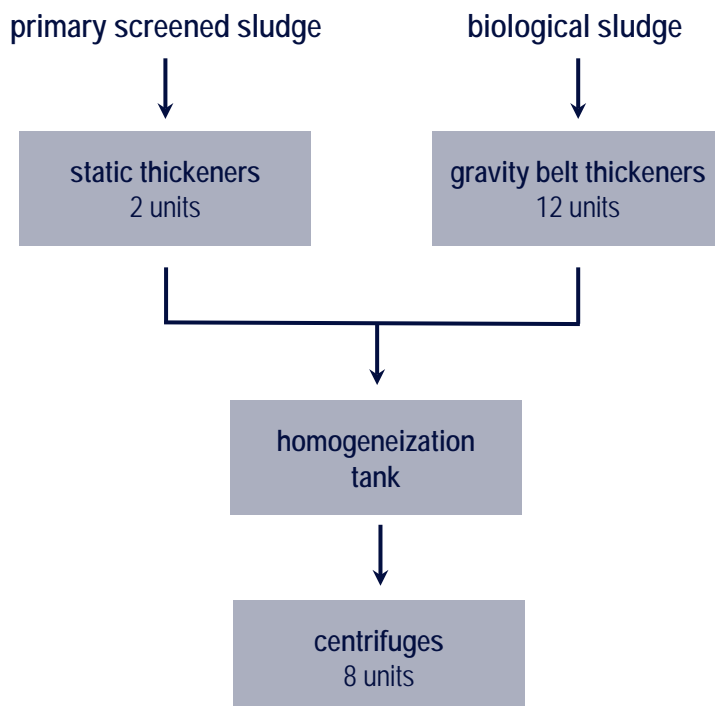
Installation of a 650 m<sup>2</sup> sludge storage area (2 silos) to provide 24 hours safety storage capacity

### the challenges

- Refurbish and extend Primary treatment from 610,000 to 800,000 m<sup>3</sup>/day average daily flow (1,040,000 m<sup>3</sup>/day as peak flow)
- Improve the quality of effluent with additional biological treatment
- Additional sludge treatment

### SUEZ's response

- Technical solution relying on proven technology and robust equipment
- Design philosophy based on optimizing the footprint in order to reduce the plant layout and provide space for future plant developments
- Optimised for sludge treatment design
- Operate the plant for 2 years at optimum technical and economical conditions while guaranteeing treated water quality



## water characteristics



	Raw water	Treated water
BOD <sub>5</sub>	250 mg/l	30 mg/l
Suspended solids	300 mg/l	30 mg/l



## stakeholders

Client :  
**CAPW**

Consulting Engineer :  
**AAW Consulting Engineers**

Contractor :  
**Consortium SUEZ /  
The Arab Contractors Co**



## key dates

### coming into force

23/10/2008

### completion phase 1

01/07/2012

### O&M of phase 1

16 months since phase 1 completion

### completion phase 2

under construction

### O&M of phase 2

24 months since phase 2 completion

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Since March 2015, all the Group brands (Degrémont, Ozonia, Aquasource, Ondeo IS, Ameriwater, Infilco, Poseidon...) became SUEZ.

Meanwhile, from now on, the technologies and know-how of our Treatment Solutions offer will be distinguished with the label **degrémont®**.

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