MBR Container Sewage Plant
Hassyan Power Plant WWTP, Dubai, UAE

China Harbour Engineering Company

China Harbour Engineering Company Ltd (CHEC) established in 1980 is an engineering contractor and a subsidiary of China Communications Construction Company (CCCC), providing infrastructure construction, such as marine engineering, dredging and reclamation, road and bridge, railways, airports and plant construction.

Hassyan Power Plant WWTP

The 2,400MW Hassyan clean coal power station is an ultra-supercritical (USC) power plant project being developed in Saih Shuaib, Dubai, United Arab Emirates (UAE). Upon completion, the project is set to be the first coal-based power plant in the region. Construction of the $3.4bn power plant commenced in November 2016. The objective of the project was to treated wastewater from the administration facility at the power plant site as well as from the ships discharge periodically. The inlet wastewater as a result could sometimes be with variable loads and hence the need for a robust technology to handle increased loads. The treated water was planned to be re-used within the existing facility for Landscaping & Irrigation purposes.

Scope and Realization

In December 2018, MENA-Water was awarded the contract for the complete design, construction, installation, testing, and commissioning of the Waste Water Treatment plant. The primary objective was to ensure minimal site work and a quick realization of the facility to avoid disruptions to the existing operations.

To fulfill the project's goals, MENA-Water implemented its innovative compact MBR package plant, specifically the MR75 U-version type. This advanced system was chosen to meet the specific requirements of the project. The effluent produced by the membrane plant consistently achieves the highest quality standards, with total nitrogen levels consistently below 10mg/l, and BOD and solids levels below 5mg/l.

To ensure efficient and reliable operation, the compact MBR plant is equipped with a Programmable Logic Controller (PLC) and remote monitoring capabilities. This allows for real-time monitoring, prompt troubleshooting, and optimal control of the treatment processes.

After successful installation and rigorous testing, the Waste Water Treatment plant was handed over to the client in August 2019. The completion of the project within the specified timeline demonstrates MENA-Water's commitment to delivering high-quality solutions while minimizing disruptions to the existing facility's operations.

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System Benefit, Technology and Advantages

System Benefit

- Full automatic system operation with Online monitoring facility minimal site work and quick realization
- Recycling wastewater in within the plant for landscaping

Technology and Advantages

- High quality effluent suitable for irrigation purposes and/or reuse as process water.
- Higher MLSS concentration Less sludge with better quality Smaller footprint & Less Odour
- Minimum works for site installation and civil structures

Equipment	Application
Lift Station	Raw Waste Water Transfer
Fine Screening	Large debris/ particle removal
Primary Treatment	Grit & Grease Removal System
Buffer Tank & Equipment	Equalization & Waste Water Transfer
Secondary Fine Screen	Fine Screening (particle removal > 3 mm)
Aeration Tank & Equipment	Biological Treatment
MBR Package Plant housing	Housing critical equipment for the process
Chemical Dosing Units	For Disinfection & Backwash
Control Panel	IP54 Panel with PLC & HMI
Field Instrumentation	For Flow, Level (hydrostatic), Pressure