

HYBACS®



A BLUEWATER BIO TECHNOLOGY

Upgrading of Secondary Treatment Using HYBACS at Tubli WPCC

Project Description

The existing activated sludge plant at Tubli Water Pollution Control Centre (WPCC) was designed to treat a daily flow rate of 200,000m³/d. However, due to the continuing rapid growth of Bahrain, the flow rate into the works was in excess of 300,000m³/d and this is only expected to increase in the future.

The Ministry of Works requested Bluewater Bio to provide a solution that, in the first instance, alleviated the overloading problems and met the stringent TN standards required of TSE production, all within the confines of existing site boundary.

The **HYBACS®** upgrade comprises the conversion of 2 of the 10 aeration lanes and 4 of the 12 clarifiers into a **HYBACS®** plant, by installing 42 **SMART™** units upstream of the aeration lanes. The upgraded **HYBACS®** plant now treats 100,000m³/d meaning that the two aeration lanes, originally designed for 40,000 m³/d, have a 150% uplift in capacity.

Scope of Works

Design, procurement, construction, installation, testing, commissioning, operation and maintenance of: new feed pump station, **SMART™** plant, conversion of aeration lanes from surface aerators to FBDA, new blower building, new sludge pump station, conversion of existing clarifiers into **HYBACS®** plant, 2 x new substations, associated SCADA control system, HV power distribution system. Following successful completion Bluewater Bio were appointed to operate and maintain the HYBACS plant at Tubli.

Project Duration

24 months, completed October 2021

Client Contact

Client organisation: **Bahrain Ministry of Works**
 Contact person: **Musab Al-Sayed** (Project Manager)
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Performance Test Results

Parameter	Guaranteed	Actual
Flow (ML/d)	120	121
COD (mg/l)	60	17
SS (mg/l)	20	3.3
Ammonia (mg/l)	-	-
Total nitrogen (mg/l)	10	5.9
SSVI (ml/g)	-	-
Power usage (kWh)	280,000	140,000



Project Name:	Tubli WPCC (Phase 2)
Client:	MoW - Bahrain
Capacity:	120 MLD / 420,000 P/E
Project Driver:	Overloaded plant and environmental concerns
Main Contractor:	Bluewater Bio
Contract Conditions:	MoW standard contract (based on FIDIC)
Project Scope:	DBO Contract

Project Highlights

- Low-cost upgrade - utilising existing assets
- 3-fold increase in capacity
- Power consumption only 47W/PE.day (165 W/m³)
- Enhances the environment in Tubli Bay
- Enables 120 MLD for reuse and irrigation
- Highest standards of H&S (zero lost-time incidents)

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