

HYBACS®

Municipal Sewage: Tubli, Bahrain

Background

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. Because the works were overloaded, the treated effluent was frequently contaminated with ammonia and sludge solids which flow with the effluent into the bay impairing the aesthetics and the ecology of the bay and causing an odour nuisance.

The Ministry of Works requested Bluewater Bio to provide a solution that, in the first instance, alleviated the overloading problem without the requirement for greenfield construction. The solution offered by Bluewater Bio achieved these goals, making use of the existing secondary treatment assets with minimal land take.

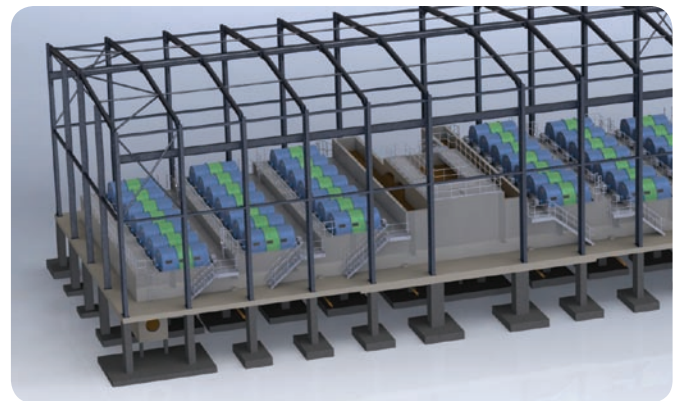
Solution

The Bluewater Bio solution was based on using its proprietary HYBACS® secondary treatment process. The HYBACS® upgrade comprised 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 treats 100,000m³/d meaning that the two aeration lanes, originally designed for 40,000 m³/d, will have a 150% uplift in capacity.

Following treatment within the HYBACS® plant, the secondary effluent is blended with that from the remaining conventional plant. Some is discharged into Tubli Bay but a large proportion flows to the existing tertiary treatment works and is filtered and disinfected for irrigation purposes.

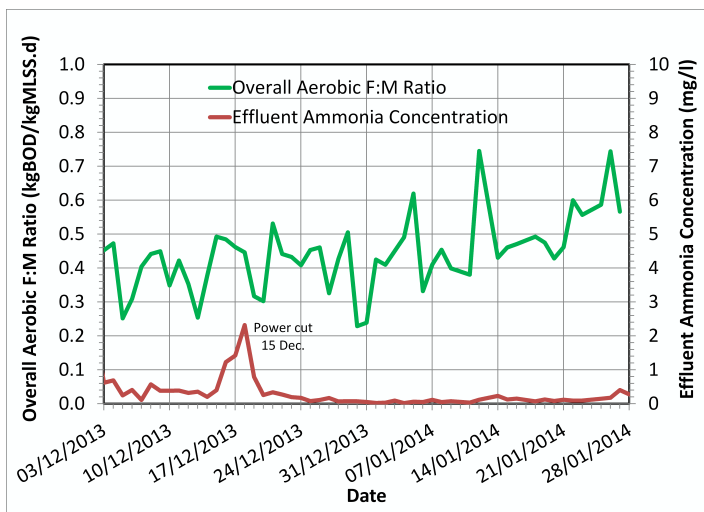
The project is the first phase of works to relieve the overloading on the existing plant. Bluewater Bio's proprietary HYBACS® treatment process is producing a fully-nitrified effluent which surpasses the quality requirements for discharge to the sea. Further, the upgrade has reduced the overloading on the existing plant, enabling an improvement in the quality of the treated water from this section of the plant also. The result of this has been a dramatic improvement for the environment and ecology in the Tubli Bay area.

The long term goal falls within the Bahrain Vision 2030 where improvement of infrastructure is a high priority. With the implementation of the HYBACS® upgrade to eliminate the immediate concerns at the works, the long term Master Plan for the Tubli WPCC improvements can be planned, designed and implemented.



HYBACS®
A BLUEWATER BIO TECHNOLOGY

Performance testing is now complete and Bluewater Bio has commenced a two year operation and maintenance contract at Tubli WPCC.



Bahrain's Ministry of Works said:

"The HYBACS upgrade at Tubli alleviates the current overloading problem without the requirement for green-field construction, thereby utilising the existing secondary treatment assets whilst avoiding additional land take."

Early results demonstrate that the plant is operating exceptionally well and meeting the highest standards, with an overall improvement in Nitrogen removal of 80%".

To find out more about HYBACS® call:

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