

# SBR Sewage Treatment Plant with Tankerstation

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## Abstract

This sewage treatment plant utilizes industrial wastewater of sewage network with additional tankerstation.

## Actual Situation

The sewage of the industrial zone at Khartoum North actually is pumped out of the town and stored in open lagoons. There was an old treatment plant of 1965 with pretreatment, sludge digesters and biological treatment in ponds which is fully bypassed since decades causing bad odour and danger of overflow. MENA-Water signed the APC contract to rehabilitate the complete plant with transfer to SBR system, suitable for heavy organic load and effluent water usable for irrigation.

**WASTEWATER  
TREATMENT  
17,000 m<sup>3</sup>/day**



## Plant Update

The existing civil structure was reused, rehabilitated and completed with new buildings. All technical equipment was renewed including automatic PLC control with SCADA monitoring.



## Headwork

The Headwork consists of 3 screening channels for two automatic perforated belt screens and one bypass protected by manual bar screen, followed by aerated grit trap and 2 primary clarifiers. The excess odour will be treated by biofilter.

All sewage flow will be by gravity up to buffer tank. There are place 3 submersible feeding pumps for alternating fill of the 4 SBR tanks.

Application	Equipment
<b>Tanker Station</b> 300 m <sup>3</sup> /day	Intake channel, inclined drum screen, pumpstation, active carbon odor control
<b>Fine Screen</b>	Perforated belt screen
<b>Aerated grit trap</b>	Air lift and classifier
<b>Dosing System</b>	Neutralisation
<b>Primary Settling</b>	Clarifiers for primary sludge
<b>Odour Control</b>	Biofilter for headwork
<b>Buffer Tank</b>	Feeding pumps for SBR
<b>Biol. Treatment</b>	Hyperclass Mixer Aerators
<b>Sludge Withdrawal</b>	Decanter system by gravity
<b>Disinfection</b>	Chlorine dosing
<b>Treated Water</b>	Pumpstation for pipeline
<b>Sludge Dewatering</b>	Sludge building with holding tank, pumps, polymer preparation piping and 2 belt press
<b>Field Instruments</b>	for flow, level, TSS, DO, pressure
<b>Plant Control</b>	complete process auto controlled MCC Panels, PLC, SCADA monitoring

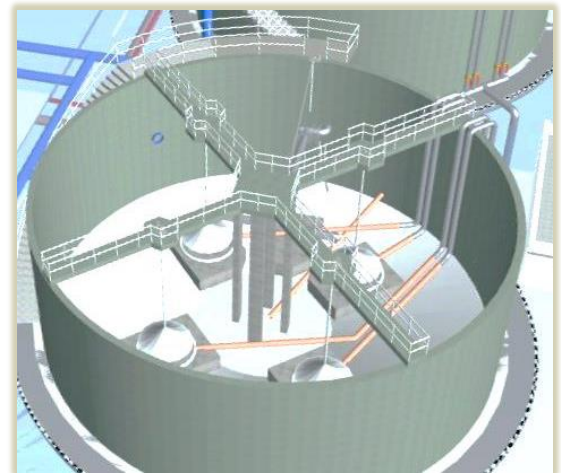


### SBR Process

The Sequence Batch Reactor is using an intermittent process of filling, treatment and emptying with flexibility to match different organic load. It is best suited for industrial wastewater.

This plant is operating with 4 tanks and each 4 hyperclass mixer-aerators. Air blower stations are supplying compressed air for oxygenation to support the activated sludge process.

All process control will be with PLC system and flexible selection of the treatment cycles. SCADA system will allow tele monitoring from control center and remotely supervision.



### Sludge Dewatering

The excess sludge is removed by gravity to sludge holding tank and here mixed with the primary sludge. Treatment will be by 2 belt press in sludge deatering building with pumping, polymer preparation, mixing and full automatic control. Dewatered sludge will achieve 20% TS and can be dried at sludge storing area.

In emergency the excess sludge can be stored at sludge lagoon.



### Effluent Pumping Station

Treated water from the SBR tanks, after disinfection, flows by gravity to the pumpstation or in case of emergency to the hazard storing lagoon.

In any case of shut off diesel generators will allow to run selected equipment whilst the SBR-process will set hold status for immediately continue after power return. In any case of partial malfunction there are many bypass possibilities for continue the treatment process.

