SARIA CleanTech Int. – Ialomita County, Romania

EPC of brown- field WWTP

NAIAD Water Solutions has been awarded the contract for rehabilitation, extension and upgrade of the existing wastewater treatment plant, which purifies the effluent of the protein flour production facility, owned by CleanTech International, located in Ialomita County, Romania.

The plant treats 420 m^3 of industrial wastewater daily, which contains high levels of COD and Nitrogen. In order to achieve the required effluent parameters, a multi-stage treatment process was designed, which allows the purified water to be discharged directly in the Ialomita River.

The treatment concept was developed taking into consideration DWA Rule 710 for the treatment of wastewater resulting from processing animal by-products.

A state-of-the-art Membrane Bio-Reactor (MBR), a combination of biological treatment and membrane filtration, was installed for the reduction of COD and Nitrogen. A Reverse Osmosis (RO) unit was also installed for treating a part of the flow of 130 m^3/d, up to water reuse standards, for the sustainable reuse as boiler feed water.

CleanTech International with its production facility in Ciulnita is part of SARIA Group, a leading international producer of protein flour.

Features:

- Capacity WWTP: 420m^3/d
- Water Recycling for 103m^3/d
- Commissioning & Start-up: 2022/ 2023

Client

CleanTech International

Type

EPC, General Contractor

Award of Contract

2020

Raw Water

Effluents Emanating from Animal Processing Industry

Main Technology

MBR, Reverse Osmosis

Commissioning

2022/ 2023

Main Components and Process Steps:

- Mechanical solid separation
- Dissolved Air Flotation (DAF)
- Weekly balancing tank
- Biological treatment & Ultrafiltration – Membrane Bioreactor (MBR)
- RO system
- Sludge buffer tank
- Sludge dewatering

Plant Description:

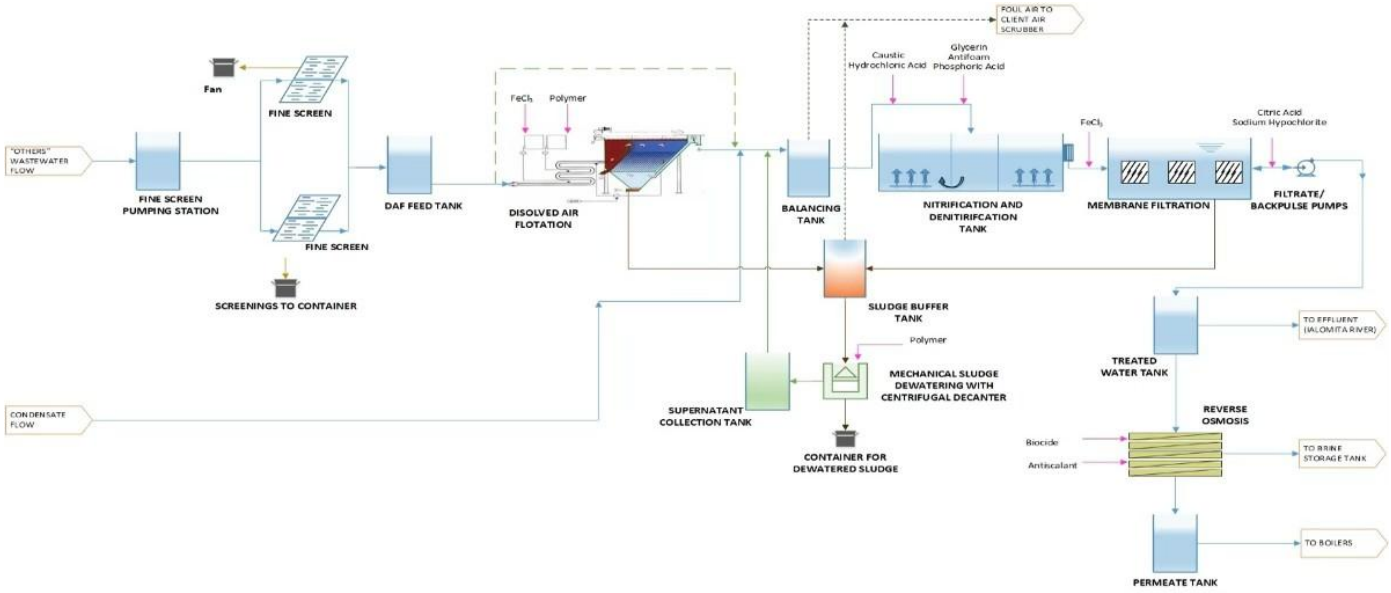
In total 4 types of wastewater streams are treated within the plant:

- Wastewater from feathers processing (a)
- Wastewater from blood processing (b)
- Wastewater from poultry processing (c)
- Wastewater from soft tissue processing (e.g., oils, fats) (d)

Prior to entering the treatment plant, wastewater from processing of feathers, blood and poultry (a, b, c) is subjected to thermal treatment for odor removal.
The resulting condensate is discharged to the balancing tank along with all other wastewater streams for homogenization.

After homogenization, the wastewater is directed to the biological treatment stage. Part of the MBR permeate (130 m^3/d) is further polished in a reverse osmosis system, to be reclaimed and reused as boiler feed water.

The sludge produced during treatment is mixed in a sludge buffer tank and dewatered to a dry solid content of min. 15%.


FOUL AIR TO CLIENT AIR SCRUBBER
Caustic Hydrochloric Acid
Glycerin Antifoam Phosphoric Acid
Fan
FINE SCREEN
"OTHERS" WASTEWATER FLOW
FINE SCREEN PUMPING STATION
FINE SCREEN
SCREENINGS TO CONTAINER
DAF FEED TANK
FeCl3
Polymer
DISOLVED AIR FLOTATION
BALANCING TANK
NITRIFICATION AND DENITRIFCATION TANK
FeCl3
Citric Acid Sodium Hypochlorite
MEMBRANE FILTRATION
FILTRATE/ BACKPULSE PUMPS
SLUDGE BUFFER TANK
Polymer
MECHANICAL SLUDGE DEWATERING WITH CENTRIFUGAL DECANTER
SUPERNATANT COLLECTION TANK
CONTAINER FOR DEWATERED SLUDGE
CONDENSATE FLOW
TREATED WATER TANK
TO EFFLUENT (ALOMITA RIVER)
REVERSE OSMOSIS
Biocide
Antiscalant
TO BRINE STORAGE TANK
TO BOILERS
PERMEATE TANK