The Efficiency of the WWTP Zalau for the Parameters Chemical Oxygen Demand (COD), Biological Oxygen Demand (BOD) and Suspension Solids (SS)

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SUMMARY

The Wastewater Treatment Plant of Zalău, Salaj county, Romania was designed to treat approximately 18.425 m³ wastewater per day, and in order to follow the discharge parameters for the chemical oxygen demand indicators (COD), biological oxygen demand (BOD) and suspension solids (SS), the aeration basins have been conceived to function as a unit on nitrification and denitrification. The concentration of the dissolved oxygen is being maintained at the level of 1 mg/l, on the aeration basin, so as to prevent the growth of autotrophic bacteria and nitrification process. Existing Wastewater Treatment Plant has been designed for a population equivalent of 50.500 people and the aim of the project is to enlarge treatment plant capacity to 90.900 population equivalent and reach the maximum effluent quality. The Wastewater Treatment Plant, is built only for the nitrification process, reduces the nitrogenous chemical compounds but not the phosphor – nitrogen compounds. The exclusive use of nitrification process in the WWTP leads to an overloading of the stream waters with manure.

Treatment Stages and Buildings

The sewage treatment plant comprises the following treatment stages and buildings:

Inlet pumping station with plant by-pass, penstocks, parshall flume, inlet coarse screen, screenings conveyor and container;
Screen building with fine screens, screenings conveyor, screenings press, and container;
Aerated grit chambers for grit and grease removal, with grit classifiers and containers;
Primary sedimentation;
Wastewater pumping station;
Aeration tanks;
Final sedimentation;
Outlet to the Zalău River;
Primary sludge pumping station and RAS&SAS pumping station;
Sludge thickening;
Sludge conditioning;
Sludge dewatering;
Supernatant pumping station;
Service water station;
Blower building;
Transformer and generator building.