



PROPOSAL MANAGEMENT AND DISPOSAL OF WASTE ACTIVATED SLUDGE TREATMENT PLANT WASTEWATER SAN JUAN DE ARAGON

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Introduction. From the point of view of sustainability, water quality and wastewater treatment are very important for human health care and balance of ecosystems, however to treat this wastewater for purification, sludge are generated during primary and secondary treatments. few treatment plants that have a system of treating sewage sludge. It is estimated to generate about 3195 t/d dry weight of sludge and that 90% of the treatment plants not perform any stabilization process¹, which creates public health problems and pollution. In this paper we set out a strategy to stabilize and properly dispose the sludge generated in the wastewater treatment plant San Juan de Aragon, in México City.

Methods. The Treatment Plant San Juan de Aragon was designed to work with a total capacity of 500 L/s. currently working with an average of 350 L/s, with a discharge of 250 L/s/d. The waste sludge was characterized with the following parameters: suspended solids (total, fixed and volatile) and pH². A strategy was designed for handling, stabilizing and disposal of sludge generated by calculating the amount of sludge produced in terms of treatment efficiency. Was calculated initial investment costs considering the stabilization operation 100% of waste sludge generated.

Results. The operating parameters of the treatment plant of San Juan de Aragon are shown in Table 1. The efficiency obtained is 87 %, calculated from the COD removal

Table 1. Monitored operating parameters for treatment plant of San Juan de Aragon.

Parameters	United 1
Volume	2240 m ³
Caudal	250 L/s
COD ₀	298 ± 132 mg/L
COD _s	38 mg/l
VSS (SSML)	1239 mg/l

COD (chemical oxygen demand in the inflow); DQOs (chemical oxygen demand in the outflow) and SSML (suspended solids in the mixed liquor)

The operating parameters are below the typical values of the operation of waste water treatment plants of their type (Table 2), which

may explain the low efficiency of the treatment plant.

Table 2. Typical parameters of continuous stir tank reactor

Parameters	Typical Value ³	*San Juan de Aragón
θ_c	3-10 d	1 d
θ	5-14 h	2 h
MLSS	2000-3000 mg/L	1359 mg/l
Efficiency	90-95 %	86 %

* Obtained in this work

The technology proposed for the stabilization of the wasted sludge is dried anaerobic digestion with a volume of 518,166 m³ operation and a volumetric flow of 124,359 m³/d This represents 5.18 m³/h of sludge for drying. Finally requires a storage tank approximately half the mass flow wasted sludge.

The arrangement, confinement or sustainable use of wasted sludge is the only ways to handle this system byproduct wastewater treatment plant. This is based on the characterization and analysis technology and considering CRETIB suggested for stabilization, may be obtained and excellent biosolids class type A.

Conclusions. The treatment plant of San Juan de Aragon "has the capacity to treat sewage sludge that is generated, because in the area of treatment available, It can only get 17% of the sludge generated in this treatment plant. For proper management of sludge, is recommended implementing an anaerobic digestion system, which would involve an initial investment of 3,773,201.85 pesos. Biosolids generated during anaerobic treatment could be used for the reforestation of the sport and the forest Zarco, San Juan de Aragon in México City.

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