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Case Study: Waste Water Treatment Plant « La Golondrina », Cordoba, Spain

Description:

The Waste Water Treatment Plant (WWTP) « La Golondrina » of the city of Cordoba (Spain), is managed by the Empresa Municipal de Aguas de Cordoba S.A (EMACSA) and has been built in 1991. Its treatment capacity is 148.000m3/day and it covers the needs of about 500.000 inhabitants. However, average daily treated flow is closer to 90.000 m3/day. The process is classical: primary treatment, activated sludge biological treatment, secondary sedimentation, and sludge thickening/dewatering.

Case Study

Mr. Joaquin Aguilar Jiménez manages the plant.

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The Problem:

When the city built the plant, there were few residents nearby. With the time, several residential areas emerged around the plant and complaints about odors coming from the station started to appear. Based on this, Mr. Aguilar started looking for solutions in order to reduce odors – mainly ammoniac type - emanating from the plant. Mr. Aguilar tried several solutions including Calcium Nitrate, Iron Sulfate, and Iron Chloride, which didn't give acceptable results. In 2000, he received a proposal from one of his electrolyte supplier who was in contact with a Belgian company specialized in anti-odors products.

The Solution:

This is how Mr. André Goldblatt, CEO of the company SARGO based in Brussels, went to visit the Waste Water Treatment Plant and after having done some analysis together with the technical team of the station, he recommended the use of the Enviro-Chem Cx product. The team of Mr. Aguilar made some lab tests, which appeared to be positive and they then decided to do a live trial.

The result was that it only took a few days to see the odor levels going significantly down. Some suppliers who were working on some maintenance activity on the site for several days, and weren't aware of the trial in progress, immediately asked what was going on since the odors of the plant had decreased noticeably.

The addition of the Enviro-Chem anti-odor chemical is part of a series of measures taken in order to reduce the odors nuisances for the residents. For instance, the trucks transporting sludge are nowadays sealed and are in use only overnight; also they put vegetable barriers etc.…

Thirteen years later, the Waste Water Treatment Plant of Cordoba still using the Enviro-Chem products. Two times in the past, they stopped adding the chemical and after 3-4 days, the odor threshold increased again

At first, the plant started using about 100l per day of Enviro-Chem product, and then with the experience, they progressively decreased the dose until reaching the minimum effective, which is about 30l per day in the summer, a bit less in the winter. Also, another highly loaded wastewater inlet coming from a yeast factory is treated with another version of the product, Enviro-Chem AG (about 6l per day).

Enviro-Chem being a contact product, it is essential that the application is made correctly as it needs to be fully integrated in the wastewater as early as possible in the process, at a place of good agitation. It is applied at the inlet of the plant and is first diluted to increase the contact surface since only a small quantity of product is added, compared to the large volume of wastewater.

For organizational reasons, the plant used a pre-existing dilution installation that adds the solution to the wastewater inlet. An IBC container of Enviro-Chem is progressively diluted in a 3m3 tank and then added with a dosing pump at the junction of the arrival of the city wastewaters and the yeast factory's wastewaters. The dilution used is 20%. Recently, a proposal has been made in order to improve the mixing (see further).

It is interesting to note that a few years back, there was an odor problem in one of the section of the sewage systems of the city. After testing several solutions that didn't give adequate results, the city tried the Enviro-Chem Cx product on the problematic sewage section that proved to be efficient in that case as well. The product has been added at the upstream pumping station, before the section with problems. Subsequently, some works in the sewage systems made the use of the product not relevant anymore, despite the excellent results obtained with Enviro-Chem Cx

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The Future

Although Spain is going those last few years through an unprecedented crisis, the use of the Enviro-Chem anti-odor chemical has never been questioned since it brings a real comfort to the residents nearby.

Nevertheless, in an objective of continuous improvement, Mr. Aguilar is interested to even further optimize the use of the product by applying it upstream before the wastewater treatment plant, at the last pumping station. This will allow an even better mixing of the product within the few kilometers of pipes leading the wastewater to the plant. Furthermore, a higher dilution rate of 1:100, even 1:200 would allow a greater contact surface between Enviro-Chem and the wastewater. The technical service of Sargo proposed the use of a proportional hydraulic pump to add the product directly to the input water stream and make a perfect mixing, eliminating therefore the need for a mixing tank.

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