Municipal Sewer Collection System Controls FOG accumulation and reduces traditional cleaning maintenance frequency

*Fat, Oil and Grease Control in Pump Stations and Sewer Lines
Using Microcat ® - BioPOP – QM study #108*

Problem

A municipal sewer network of a town in the western part of The Netherlands experienced regular fouling with fats, oils and greases (FOG) requiring quarterly sewer cleaning maintenance. The town, with a population of around 123 thousand people of different ethnic origin, also houses several food manufacturers discharging on the sewer network. Although these industries have their own FOG removal systems in place, FOG was still entering the network causing serious problems in respect of clogging of lift stations at the out skirts of the industrial zones.

Several residential areas of the town experience FOG accumulation in the sewer network due to domestic discharge and discharge from restaurants. The high level of FOG accumulation in the network required the sewer department of the local authorities to clean certain sections of their network on a quarterly basis opposed to the normal sewer cleaning frequency of once every two years.

Based on experiences of a neighboring town using MicroCat-BioPOP for controlling FOG levels in several lift stations the local authorities of this town decided to do a one year project to see how a biological green approach would help them reducing the frequency of traditional sewer line cleaning.

Application Procedure

Based on the information provided by the local authorities on the sewer segments experiencing the heaviest FOG accumulation, dosing points for the MicroCat-BioPOP's where selected at key points in the network. BioPOP's of different sizes where installed in 22 man holes of sewer lines and in 2 major lift stations. The BioPOP's where mounted by a chain which was fixed at the top of the man hole or lift station.

A monthly inspection program was implemented to monitor the treatment. Every month photographs were made of the treated sections and lift stations. When needed, run out BioPOP's were replaced with new ones. The monthly application and inspection was performed by a 2 men crew driving a small van within a period of half a day.

Results and Conclusions

After 6 months of treatment an interim evaluation was performed by the local authorities. The authorities concluded that during the 6 month period in which the BioPOP treatment was in effect, no traditional sewer cleaning was required in the treated sewer lines and lift stations. Additionally, maintenance crews of the local authorities reported that lift stations downstream from the treated sewer lines did not show levels of FOG accumulation which required cleaning maintenance.

After one year of treatment the local authorities concluded that still no traditional sewer cleaning was required in the treated sewers and lift stations. The MicroCat-BioPOP treatment proofed to be effective in maintaining minimum levels of FOG accumulation in most of the treated lines and several lines even becoming completely clean. Lift stations previously requiring regular emptying did not require physical FOG removal since BioPOP implementation.

According to the sewer department the MicroCat-BioPOP treatment resulted in a considerable saving on their sewer line and lift station maintenance budget.

Based on these results the town decided to continue with the MicroCat-BioPOP treatment and expand the treatment area.

Additional Benefits

The reduced amount of traditional sewer line and lift station cleaning operations resulted in less damage to roads, pavements and green zones with access points to the network which were normally damaged by the sewer cleaning trucks. By using MicroCat-BioPOP the local authority saves between € 30,000.- to € 40,000.- per year on their budget for sewer cleaning. The nuisance for inhabitants of the town, the damage to the infrastructure and sewer lines are not included in this saving.

The MicroCat-BioPOP treatment also provided a more environmental sustainable method of maintenance. There is less exhaust form the trucks polluting the air and there is less fuel consumption.

Compared to traditional cleaning were FOG is either flushed away downstream to the municipal wastewater treatment plant or collected by the sewer cleaning truck and then transported to the municipal wastewater treatment plant, the FOG's are biodegraded in the system by the bacteria present in the BioPOP's resulting in zero downstream treatment costs.

BioPOP108