

25 August 2011

UK Company Provides Treatment Upgrade in Bolivia

In late 2009, Gurney Environmental Ltd. completed the installation of an internationally tendered, World Bank funded project to address wastewater processing issues in the city of Santa Cruz de la Sierra, Bolivia. The 1.8 million population city's infrastructure is under stress due to significant population growth. The wastewater treatment plant (wwtp) had been in an overloaded condition resulting in low rates of processing, sludge accumulation and odour issues.

The operations company, SAGUAPAC, owns and operates the wwtp, which is located in a northern suburb of the city. The North wwtp utilises facultative lagoons of about 50 hectares and in 2009 received a flow of 34,000 m³/day and a BOD load of 3,400 kg/day. The aerial loading on the two primary facultative lagoons averaged 249 kg BOD/hectare/day. With a complete lack of dissolved oxygen (DO) in the water column, the wwtp was suffering from odour and processing problems.

Normally SAGUAPAC would have constructed more lagoons to increase treatment capacity but as no land was available at this wwtp (being hemmed in on all sides by the city's encroachment) another option was needed. In similar situations in other parts of the world, a more mechanised method of wastewater treatment, such as activated sludge for instance, might have been chosen, but this was not deemed cost effective or sustainable.



Pre-installation, the 2 primary lagoons can be identified by the poor colour due to oxygen deficiency.

started to lose their colour and the DO levels dropped off, albeit no odour resulted. SAGUAPAC has since reduced the loading to about 1.5 times pre installation levels and has elected to operate the lagoons under these conditions ever since.

Instead, a Gurney Environmental Accel-o-Fac[®] design and equipment upgrade was installed as shown on the General Arrangement drawing (above). Within 6 weeks of commissioning, the lagoons established a positive DO content – the first time this had happened. The odour had dissipated and the processing rates and treatment performance increased significantly. The lagoons continued to operate at pre installation flows and loadings and maintained a good DO level throughout with a healthy green colour as would be expected.

In order to be able to keep up with the increasing wastewater flows, during 2010 SAGUAPAC gradually increased the wastewater loading on the primary lagoons up to about 1.7 times pre installation levels, at which point the lagoons

PRESS RELEASE

The Accel-o-Fac[®] system has provided an overall improvement in lagoon treatment capacity enabling a 50% increase in flow throughput with only a modest expense in equipment and a negligible increase in operating costs. Compared with alternatives, Accel-o-Fac[®] offered best value for money and through the use of the abundant winds, the most sustainable upgrade option.

For more information, see: GurneyEnvironmental.com



What is Accel-o-Fac[®]?

Accel-o-Fac[®] is a zero-to-low-energy, sustainable, easy and low cost upgrade for WSP wastewater treatment systems that includes both special design features and specialised equipment. The Accel-o-Fac[®] system has successfully treated a wide variety of wastewater for many years.

The benefits are accomplished with almost zero operating cost by employing wind power as the primary energy source and through the use of highly specialised equipment combined with a number of unique design, construction and operation techniques. The net result is a total “optimisation” of a purely biological process resulting in an overall acceleration of the processing rate.

A Fully Optimised Process

This “optimisation” enables Accel-o-Fac[®] wastewater treatment plants to handle higher loading rates than old-fashioned WSP designs — all at zero-to-low operating cost and without the use of expensive and complex conventional mechanical aeration, chemicals or significant manpower.

Self Digesting Sludge

Long term studies prove these systems anaerobically self-digest all organics within the system with the inert materials accommodated for the life of the plant. That can be an important consideration with regulations and concerns regarding sludge disposal and handling. Accel-o-Fac[®] achieves this important benefit by ensuring

correct loadings and detention times as part of the overall design process along with optimised conditions within the system.

O & M Considerations

Equipment maintenance for a typical Accel-o-Fac[®] system is minimal, even for very large facilities, requiring mostly visual inspections annually. Lubrication of bearings occurs automatically via the special lubrication system, serviceable on an approximately semi-annual basis, and there are almost no consumable parts to replace over the years. Accel-o-Fac[®] is a truly zero-to-low energy solution to wastewater processing.