



New wastewater treatment method patented

It is often a primary goal when treating wastewater to reduce phosphorous and nitrate levels, allowing treated wastewater to be safely discharged to the environment. Many government agencies have introduced strict wastewater treatment plant phosphorous and nitrate level requirements, which can be difficult to



Bruce Johnson's newly patented wastewater treatment process will allow any treatment plant, such as this one, to biologically remove phosphorous.

achieve using traditional treatment techniques.

Bruce Johnson recognized this need when he saw that two commonly employed methods of phosphorous reduction, chemically enhanced primary treatment and biological phosphorous removal—two separate and often conflicting systems—could work better in combination to remove phosphorous.

Using the advantages of both treatment processes, Johnson developed a system

that uses metal salts in the upstream treatment process (primary clarifier), enhancing the separation of organic matter, which is then removed to form primary sludge. This sludge is then fermented to form the food (volatile fatty acids) needed for efficient biological phosphorus removal. The volatile fatty acids are then separated from the fermented sludge and fed to a bioreactor, where they are used for biological phosphorous removal.

This unique and innovative treatment process was submitted to the U.S. Patent & Trademark Office in May 2004, and received U.S. Patent No. 6,982,036 in January of this year.

“Although the process isn’t in use yet for any current treatment plants,” Johnson said, “it is definitely a viable option for future projects. Many treatment plants today don’t have the capability to use both chemical and biological treatment in combination. It is usually one or the other. However, through this process, any treatment plant, even those using chemical systems, will be able to easily adapt to biological treatment to remove phosphorous and significantly reduce operating costs.” UN Ltd