

Evowash sand plant

# Recycling success for Severn Trent Water

**Severn Trent Water has made significant progress in its drive to reduce waste to landfill volumes and increase recycling through the introduction of a processing plant.**

**Plant from CDE Ireland provided to Severn Trent Water on a rental contract by Biffa is processing a variety of waste materials. Since it has been introduced Severn Trent Water have seen a significant reduction in waste to landfill volumes. "We are now sending 50% less waste to landfill than was previously the case" explains Nick Williams, Digester Fleet Manager with Severn Trent Water.**

*"We are recovering a range of materials from the waste which are subsequently used in construction projects and energy generation initiatives within the company."*

Generating energy from waste is very much top of the agenda at Severn Trent currently with CEO, Tony Wray, keen to increase the proportion of electricity that the company can generate for its own use. Tony has a goal of generating 30% of the company's electricity needs internally within five years. This is a significant increase from the figure of 17% recently announced for 2008, but according to Tony imminent legislative changes now mean that this sort of 'blue-sky' thinking is necessary from all water companies.

In an interview with the Sunday Times in January 2009, Tony highlighted the fact that water companies will be among those that will be included in the EU's carbon trading scheme, under which they will have to pay for emissions.

Addressing this issue Tony comments: *"We're going to get captured in the next phase of the carbon trading scheme, so the efficiency with which we can manage our energy consumption is very important."*

The plant from CDE is located at the Minworth Sewage Treatment Works site operated by Severn Trent Water in Sutton Coldfield on the outskirts of Birmingham. Severn Trent rents the plant from Biffa which also manages the day to day operation of the processing plant that processes a variety of waste materials including wet well waste, gully waste, inlet works grit and sewer blockage waste. The plant also processes reed bed material as part of Severn Trent Water's Reed Bed Refurbishment Program.

The capability of the plant to cope with a variety of feed materials was key at the specification stage, as explained by Nick Williams. *"We had previously purchased a modified version of one of CDE's sand plants and had a good*

*experience with the system. The most important thing from my perspective was ensuring that the system we chose was tried and tested and proven in this type of application. Over the last three years we have seen first hand that the CDE system works."*

## New venture

The venture into this industry is a relatively recent one for CDE, which has traditionally supplied processing systems to the quarrying, mining and recycling industries. Over the last three years its business in the municipal water treatment sector has grown significantly and this recently led to the establishment of a CDEnviro business unit within the company, specifically charged with further developing business in this sector. The CDEnviro business unit also takes responsibility for the further development and improvement of the product offering currently available from CDE to the sector.

*"Our initial venture into this industry some three years ago involved the development of a trailer mounted system designed to process waste from wet wells and digesters"* explains Matt Bunting, CDEnviro's newly appointed commercial manager.

One of the company's first customers for this system was Biffa and it was through exposure to the system as it was applied at the Minworth site that Nick Williams was convinced that the system not only offered a means of reducing waste to landfill costs, but also recovering materials for future use.

*"The Dmax trailer unit was used by Biffa for over two years as part of our company wide digester cleaning program and proved very successful"* says Nick Williams. Having seen the trailer unit in action and delivering results, Nick was keen to explore whether CDE could offer an extension to the system, which would facilitate the processing of a broader range of material. *"The trailer unit was very effective at removing water from the waste and classifying material but we were limited by the restriction on feed material of 8 mm and below"* he explains. ►

Having spent considerable time at the Minworth site with Nick Williams and discussing the new plant requirements, CDE proposed a plant extension.

This would utilise the Dmax trailer unit for processing the minus 8 mm material but would also provide a processing system to be introduced prior to the Dmax unit to accommodate the plus 8 mm material. "Given that this was seen as a new approach to the handling of this waste, there was a 'wait and see' approach at the outset" says Nick.

"We were granted a license to process 50 tons per day of material through the new CDE system as a pilot scheme and it has been very successful."

The process begins with the feed material being delivered to a hopper via telehandler, where it is then conveyed to a ProGrade C series dewatering screen with screen mats set to an 8 mm aperture.

Throughout the CDE system a focus on what they call 'transfer point technology' ensures spillage is minimised which not only improves plant efficiency but also has a significant effect on reducing on-site health and safety concerns.

Once at the primary dewatering stage all of the plus 8 mm material is removed and stockpiled while the minus 8 mm material and waste water is pumped to the Dmax system. The feed is then delivered directly onto the first side of the split, high frequency dewatering screen where the rag is removed and discharged into a skip. The grit material and waste water falls

through the polyurethane screen deck to the collection sump where it is then pumped through a hydrocyclone and discharged onto the second side of the split screen. At this stage in the process the grit is dewatered while the waste water is sent back to the treatment plant for further processing. At the end of the process there are a number of materials available to Severn Trent Water for further use.

The grit removed from the waste is sold as recycled aggregates to the construction market for use in a variety of projects. The other screenings have a potential re-use in incineration – an avenue to electricity generation. Similarly the organics are returned to the digestion process to produce methane in another move by Severn Trent towards their target of generating 30% of their own electricity within the next 5 years. The other screenings have a potential re-use in incineration – an avenue to electricity generation. Similarly the organics are returned to the digestion process to produce methane in another move by Severn Trent towards their target of generating 30% of their own electricity within the next 5 years. This is the saving made by Severn Trent Water when the full rental and operational costs of the plant have been paid to Biffa. "In anyone's language the reduction in waste volumes made possible by this plant are extremely significant" says Nick Williams.

Following the successful operation of this pilot scheme Severn Trent recently placed an order with CDE for a new 200 tons per day processing system at the Coleshill site, which is very close to the Minworth plant and is also managed by Nick Williams. "Our order for the Coleshill plant is specific recognition of the successes we have seen at Minworth" highlights Nick. "With the increased capacity of 200 tons per day at Coleshill we will be able to deliver even more significant savings over the coming years.

With a growing focus on reducing waste to landfill and increasing regulation of the industry as whole, Nick believes that major water companies have to step out of their comfort zone and take challenging decisions on how they deal with their waste materials.

Taking sand away





**View of the plant from the bottom end of yard**

*"It was only through a top down commitment to exploring new ideas and innovations that we were able to get this system up and running," explains Nick. "Through the commitment of ourselves, Biffa and CDE to get this thing right we have been able to create a successful system which I believe can be applied throughout the industry to efficiently reduce waste and increase recycling."*



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**Full plant from top end of yard**

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