

A skip in time saves nine?

In recent years, legislation has allowed dewatered sludge to be returned to the land only if it had first been appropriately treated. One favoured method is stabilising the sludge by mixing it with quicklime (calcium oxide, CaO). This causes an exothermic reaction, helpfully raising the pH of the sludge and delivering the required high pathogen kill.

There are various types of equipment available for mixing sludge with quicklime. One of the most reliable and cost-effective is to mix the sludge and quicklime in the hopper of a progressive cavity pump, which can then pump the product to closed containers. seepex pioneered this solution in the early 1980s and the company has continually adapted and improved its range of open hopper pumps to suit ever-increasing environmental demands. Having supplied dozens of plants throughout Europe and the UK, seepex pumps are now capable of handling non-flowable sludge from centrifuges, belt presses or hoppers where the dry solids content is as high as 45%.

The starting situation

It was therefore perhaps unsurprising that in 2002 Dwr-Cymru Welsh Water approached seepex for a plant to treat and stabilise imported sludge cake at their Parc-Y-Splott sewage treatment works at Carmarthen. As well as being cost-effective, a requirement was that all the new plant had to be accommodated in the existing works.

The solution

The solution that seepex determined was to build a 30 tonne reception silo (with a 'live bottom') with a seepex silo pump underneath it. The sludge cake (of 20-30% ds) is pumped 40m to a seepex lime mixer pump where the sludge is mixed with the quicklime. To minimise quicklime usage and so keep costs to a minimum, its addition is accurately controlled by a PLC controlled process. The stabilised cake is then pumped 30m to three closed containers.

The benefit

Despite the high percentage of dry solids, the system comfortably processes 80 tonnes of dewatered sludge cake daily.

The benefits have not only come to the Parc-Y-Splott works. It is now much cheaper for Dwr-Cymru Welsh Water to dewater sludge cake on satellite sites and transport the cake (at 25-30%ds) to than to transport the wet sludge (with only 3-4%ds) as they had done previously. This has resulted in massive cost and environmental savings with only one sludge trip where previously there had been up to 9. Furthermore, Dwr-Cymru Welsh Water can now treat sludge cake from other sites if equipment there fails or is down for maintenance.

Please visit www.seepex.com for further information and contacts.



Live bottom reception silo with 9 bi-directional screws

Key Facts

- Hopper can be loaded directly from skip - optimizes quicklime addition rate
- Unit capable of handling >45% ds
- 'Live bottom' silo stores up to 30 tons
- Readily installed in compact spaces

Significant Cost Savings

- Transport costs reduced by up to 80%
- Low installation cost - no main contractor involvement
- Company-wide processing capacity maintained even when other sites down



Installed Pump Type

- Range BTES