



Case Study

World's largest Wood Pellet Store - 100% Reclaim from the actually largest fully automated Wood Pellet Store

Edited by on 28. Apr. 2020

[Published in bulk solids handling, Vol. 34 \(2014\) No. 1](#)

In the UK as well as in the rest of Europe biomass fuel is finding ever more attention. To enable the utilisation of such materials in power plants on a big scale they have to be supplied in consistent quality with regard to chemical and physical composition. This can be achieved by transforming them into pellets, with the additional benefit that systems for handling such materials already exist.



View onto two the newly installed concrete dome silos for the storage of wood pellets at Drax power station near York, UK. (Pictures:

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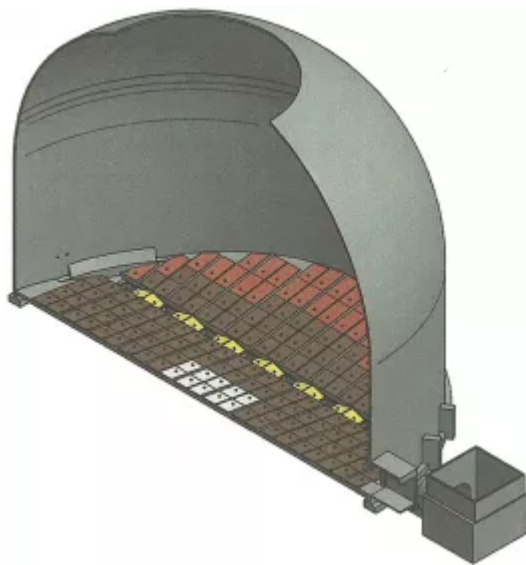
Vibrafloor were selected to reclaim pelletised biomass from four 63 metre diameter concrete dome buffer storage vessels which hold 450 000 m³ of pelletised biomass fuel, to reliably deliver up to 50% of the co-firing heat at Drax Power Station, located near York, UK.

Project Phoenix includes an extensive biomass fuel unloading, handling and storage facility allowing Drax to provide up to 7% of the UK's electricity, via a bespoke direct injection co-firing system.

The Vibrafloor system was chosen by both the client and the main contractor, Shepherd Construction, as the preferred bulk reclaiming option following extensive due diligence, because of its advantages over various competing reclaiming technologies.

Gentle and reliable Material Handling

These advantages included the ability to achieve 100% clearance of stored product without generating dust or degrading the pellets and requiring no routine maintenance because of the lack of major moving or wearing parts. Automatic operation avoids personnel entering the storage vessel while factory assembled modular construction provides inbuilt redundancy, with the wave action avoiding feedstock bridging.



Cross section of a wood pellet storage silo featuring the Vibrafloors floor elements.

The reclaiming system works by creating a wave in the flexible surface plate of each of the floor modules, instigated by a low power centrifugal vibrating motor, which undermines and collapses the leading edge of free flowing as well as cohesive material through a low pressure zone, creating a progressive avalanche

of the stored material.

The collapsed material is subsequently swept away by the gentle wave action (much as the effects of erosion on coastal cliffs), without causing any product degradation or dust generation, while constantly undermining any obstruction of material which might have formed bridges in the store.

On this project, each of the four dome storage vessels is fitted with two discharge conveyors located in underlying tunnels, which will discharge the stored product at a rate of 2800 tonnes per hour to each of the conveyors.

This flagship project is the first of a number of power projects that Vibrafloor are involved with, demonstrating the confidence and capability within the UK and Europe, of large scale energy providers to utilise pelletised biomass as a sustainable fuel source.