

## CASE STUDY

# Greenbank Terotech enhancing engineering performance

### Plant Challenge:

A 30 MW waste-wood-fired power plant in the north of England suffered regular blockages in each of the discharge chutes from the fluidised bed boiler caused by oversize ash lumps and non-ferrous tramp materials. These blockages were causing frequent unscheduled stoppages as well as presenting a health and safety risk to the plant operators.

In normal plant operation, the ash and fluidised bed sand are continuously removed via four gravity-fed discharge chutes, with the flow being controlled by vibratory feeders. The ash is screened, and the sand recirculated back to the fluidised bed.

The chutework design did not account for the oversize and tramp materials, which were collecting in the discharge chutes causing the blockages, and the ash system design did not include ash crushers.

Manual intervention was required to remove the trapped materials, which caused significant downtime, loss of generation and a health and safety risk to the plant operators who were exposed to hot ash falling during the blockage clearing process.

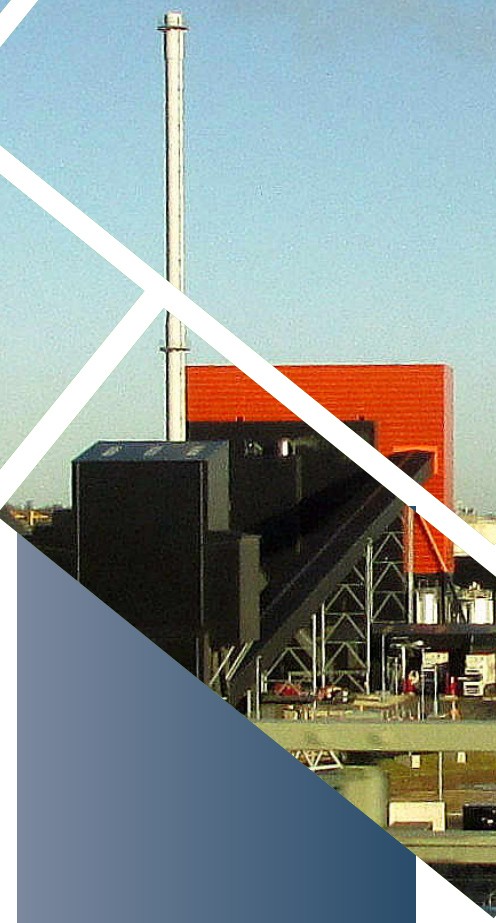
### Greenbank solution:

Since the end of the 1980's Greenbank has installed UCC Environmental's ash handling technology into the large coal fired power generation sector, but more recently, the equipment has found a new home at several of the UK's newly built Energy from Waste plants.

Greenbank approached the customer and proposed the addition of a UCC Excen 460 crusher into each of the discharge chute legs to eliminate the blockage problem. The crusher would be installed into the chutework at the position where the blockages had arisen.

Greenbank also made modifications to the chutework feeding the crusher to promote material flow. Due to the configuration of the fluidised bed and discharge chute arrangement, the crusher would be operating in a column of material, rather than a free-flowing feed. To facilitate this, the crusher would be programmed for pulse operation, rather than continuous running.

UCC's Durite material was selected for the crusher cams to give extended wear life in this hot, aggressive application. The crusher would also be mounted on rails to enable easy access to the crusher internals for routine maintenance. Initially Greenbank installed a single crusher on the most problematic discharge chute leg to test performance.



### Results:

Since a successful trial run in 2020, the crushers have been in full operational mode and the chute blockages have been eradicated removing the need for regular manual intervention.

Only routine maintenance has been required and the internal crusher components are performing well.

The customer is in the process of upgrading the remaining discharge chute legs with crushers and is very pleased with the improvement in plant operation, reliability and operator health and safety.

Arrangement before crusher installation:



Excen 460 Crusher in operation:



### Greenbank Terotech Ltd

Company Reg No. 03509216  
Hartshorne Road  
Woodville  
Derbyshire  
United Kingdom  
DE11 7GT