Creation of bespoke bone char water treatment plant

Power station, UK

Client: Electrical utility power generator
Timeframe: 4 weeks (manufacture to installation)
Value: £80k

Challenge

McAuliffe, and its specialist remediation arm, Geostream UK, were contracted to supply a water treatment plant to a large power station.

The client, an international energy supplier, had a zero-tolerance approach to uncontrolled discharges.

The site was also subject to **strict controls** on working methods, and health and safety was its top priority.

Water from surface and groundwater infiltration had collected in below-ground service conduits, and had become impacted due to the presence of metals.

While concentrations were low, there was an exceptionally low target value for waste water discharge, so water had to be removed and treated before discharge.

Solution

Working with the client, McAuliffe designed a system that combined the use of Granulated Activated Carbon (GAC), derived from coal, and bone char, a carbon derived from waste animal bones.

Each type of GAC was optimised to remove a particular type of contamination.

The GAC is highly effective at removing hydrocarbons and high dissolved metal concentrations, while bone char removes low concentrations of dissolved metals from waste water.

Water was pumped from the substructures and passed through a separator before travelling through the GAC (single vessel) to two bone char filters. Two different grades of bone char were used to improve performance.

A programmable logic controller (PLC) monitored performance of the plant's pumps and pressures to ensure safe operation.

The graphical representation on the PLC screen helped operators to supervise the plant's operation.

RESULTS

- Design & build pump and treat plant manufactured in-house
- Bespoke GAC and bone char treatment technology designed and created for metal remediation
- Regular exchanges of GAC and bone char ensure the plant will operate for years